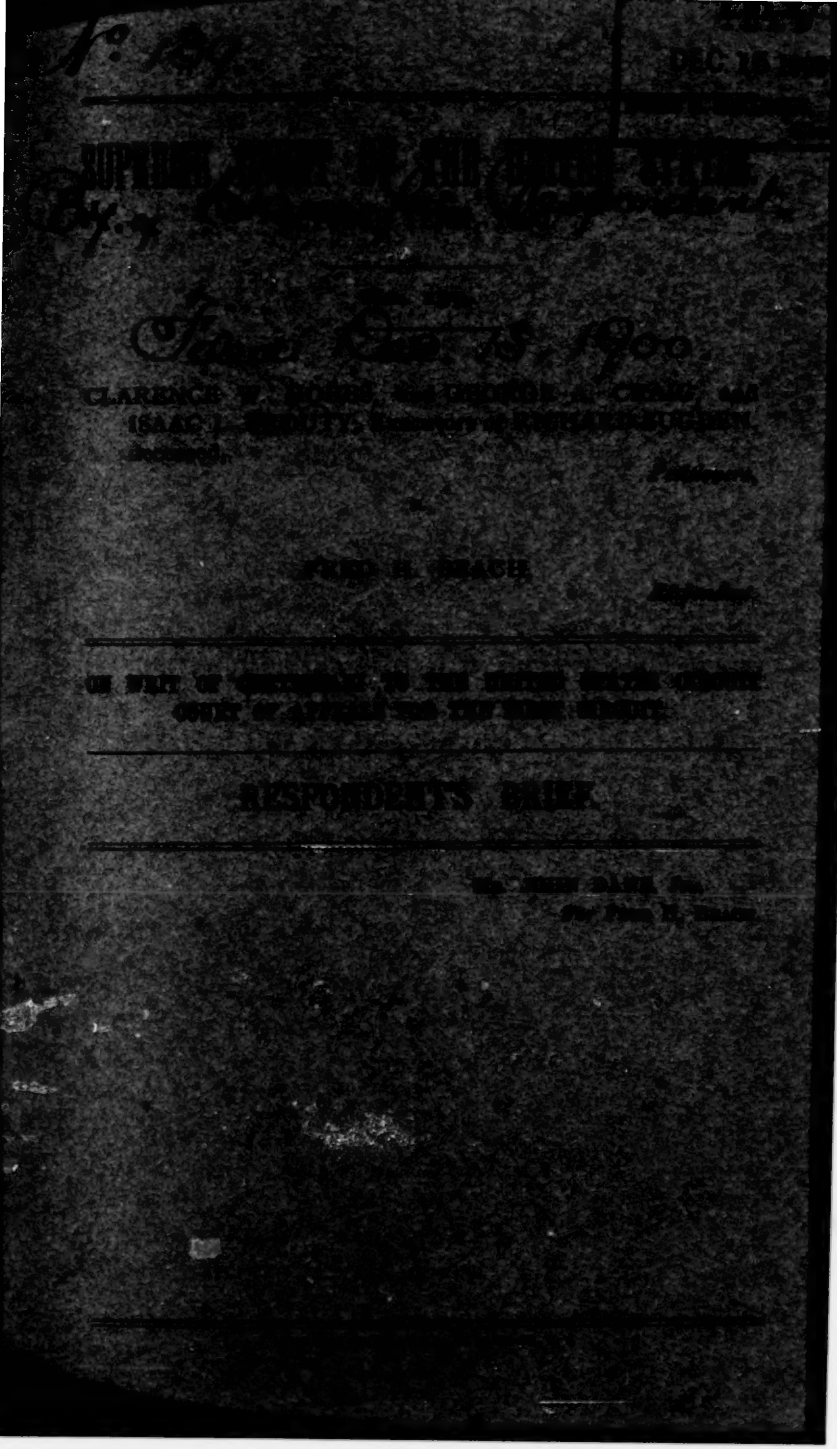

Supreme Court of the United States.

CLARENCE W. HOBBS and GEORGE A. CRAIG and ISAAC L. PROUTY, Executors of RICHARD SUGDEN, deceased,

Petitioners,

vs.

FRED H. BEACH,

Respondent.

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE FIRST CIRCUIT.

RESPONDENT'S BRIEF.

Statement of the Case.

A review by this Court is sought by the petitioners to correct certain supposed errors of the Circuit Court of Appeals, of the First Circuit, respecting conclusions set out in its opinion, whereby the first, second, third and the sixth claims of the Beach Reissued Patent No. 11,167 were held to be valid, and that the machine of petitioners contained the combinations and was therefore an infringement thereof.

The principal errors of the Circuit Court of Appeals set forth in the petition for a *certiorari* (as we understand them) are that:

(1) The first three claims of the Beach Reissued Patent are invalid, and if valid, should be given a narrower scope than their language implies.

(2) That the feeding mechanism of the defendants' stay machine was not substantially the same as the feeding mechanism of the Beach patent, but on the contrary, a new invention.

(3) That the feeding mechanism of defendants' staying machine was not a known device at the date of the Beach application and therefore not a known substitute for the feeding mechanism of the Beach patent.

(4) That the inserting of the words "substantially as described" in the claim of the Beach patent had the effect of limiting them to the specific mechanisms set forth therein, and

(5) That the Commissioner of Patents required the insertion of the words "substantially as described" after each of the elemental mechanisms recited in each of the first three claims of the patent, and that a letter of applicant of December 26th, 1890, corrected or conceded the requirement.

(6) Petitioners contend that there is a conflict of opinions rendered by the Circuit Court of Appeals in the First and Second Circuits concerning the scope to be given the said first, second and third claims of the patent.

(7) Petitioners also contend that the Court of Appeals, for the First Circuit, disregarded the facts in the case concerning the feeding mechanism of defendants' machines.

(8) Petitioners contend that there was no proof in the record that the Horton feed (of defendants' machine) was known at the date of Beach's original patent,

except from the Horton patent itself of December 9th, 1890. (See old patent to Van Geason of July, 1877.)

(9) Petitioners also contend that the Horton feed is incapable of operative substitution for the Beach feeding mechanism. (See brief and argument hereinafter.)

(10) Petitioners contend that the first claim of the patent is destitute of a necessary element, to wit, a "cutter," while in the second claim a "pasting mechanism" is wanting.

(11) That the original claims did not contain the subject-matter of the sixth claim, that is, "clamping dies constructed to act with an elastic or yielding pressure."

(12) That Beach enlarged his claims to cover other machines which have been devised since applicant (Beach) made his invention, which as a fact differed only in details of construction.

It will be contended for respondent that no material, if any, error has been committed by the Court of Appeals below.

The invention of Fred H. Beach (respondent) for which the Reissued Letters Patent was granted and upon which the present action is based, is for an entirely new, an original, and the very first machine ever invented for performing mechanically that work which theretofore had always been done manually or by the hands of a person.

The Machine of the Beach patent briefly stated, consists of a stand or frame for supporting at a proper height for the operator, the essential details forming an operative mechanism for performing the work of applying short stay strips of paper, or a similar composition, upon and over the corners of paper boxes in such manner as to serve as a means for reinforc-

ing and securely holding and fastening the sides and end pieces together as they are folded into a box form, from straw or card-board blanks previously prepared by being cut into the proper size and form for the formation of such. The object and advantage of the short stay strips of paper or similar composition (usually composed of paper mixed with muslin or linen fibre) applied to the corners of paper boxes, over previously known means, such as metallic or wire stapling, wrapping, or winding the box with a continuous covering of thin paper, is that the stapling is uncertain and unreliable and the staples frequently tear and cut themselves out of their positions and also corrode and destroy, or weaken, as well as discolor the covering of the box *per se;* while a continuous covering piece of paper wound about the box does not and cannot properly draw together and secure the corners in the desired rigid, fixed position, such methods being found in practice to be wholly impractical, as the joints at the union of the sides and ends are usually left loose and held flexibly together (as, so to speak) hinge-like and yielding at the corners, and, as it is desirable that a paper box should be as strong and rigid as the composition of its main parts (or the body proper) will allow, it is quite as necessary that its corners should be at least as strong or stronger than its sides, for the reason that it is at the corners where the sides and ends of the box are the most taxed and strained, consequently require the greatest strength and support against the pressure from the contents within. Furthermore, the "box" to be of the proper form should have smooth, perfect, and uniform corners, and not the variable, irregular, rounded, unsightly finish at their corners, as is the case with those produced by the hand. Again, by manual application of the stay-strip it is impossible for the operator to unite the stay-strip with the body of the box with a uniform degree of firmness and adherence, on the contrary, some are barely united with the box, others only partially, while others are not secured or reinforced at all.

☞ The machine of the patent applies the strip with sufficient power to make it (the strip) uniformly integral with the body, and with a smooth squared finish, and by a sufficient positive pressure applied, all moisture is thereby immediately forced or dried out, which moisture usually attends the application of means, whether it be paste or otherwise for the adhesion of parts, whereas, by the hand application, hours of time are required for the moisture at the corners to dry out, the amount of time for drying hand work depending more or less upon the conditions of the atmosphere at the time, whether dry or damp.

The leading paper box manufacturers of the country acknowledge it to be the first machine adapted to do the work theretofore done by hand, and they assert that no box manufacturer can afford to be without such machine and expect to compete for the trade against those having such.

The essential mechanism or combination of the first claim of the Beach Reissued Patent (Brevort's Dep pp. 14-15) consists of:

(1.) Two opposing clamping dies having diverging working faces;

(2.) A feeding mechanism which delivers the stay-strip between the clamping dies when the upper die is raised, and

(3.) a pasting mechanism. The second claim with a cutter for severing from a continuous strip a piece sufficient for each box corner. The third claim includes the two opposing clamping dies, a feeding mechanism, a pasting mechanism and a cutter or severing device. The sixth claim includes the clamping dies having diverging working faces with a spring in connection with one of the said clamping dies to enable the dies to act with an elastic pressure, so that variations in the thickness of the straw or cardboard of which the box

is to be formed will not unduly strain the co-acting parts and cause fracture. Beach clearly sets forth in the specification of his patent that he does not limit himself to the feeding and pasting mechanism described, as other forms may be used (p. 242 Trans.).

A brief synopsis of the history relating to the invention and patent therefor upon which the present suit is based, and the litigating of the patent, is as follows:

The work of staying the corners of paper boxes with short strips of paper and muslin, prior to the date of the Beach invention, had always been performed by the slow, tedious, irregular and uncertain hand method. The paper box making art requires that nearly all fine classes of boxes that are of the square and other angular forms should be stayed, reinforced, or strengthened at the corners where a union of edges are to be brought together and united, by the application of suitable adhesive supporting strips of paper or fibrious composition that shall not weaken the parts by such union and present a uniformity and smoothness of surfaces that the delicate coverings usually applied to fine boxes are not injured at the points of union of stay-strips and box. It was the slow, tedious and uncertain hand method of staying such box corners that prompted Mr. Beach to devise the apparatus afterwards patented by him which forms the subject of the present suit.

The proofs show that Mr. Beach on or about the 10th day of June, 1885, made application for a patent for his invention, and while it was pending in the Patent Office it was placed in interference with the following applications, to wit: that of James Marshall, of Boston, Mass., March 7th, 1887; with that of Gustav L. Jaeger, of New York, December 27th, 1887; with that of Horace Inman (one of the defendants in the New York suits), of Amsterdam, N. Y., February, 15th, 1889; with that of David Rice, of Boston, Mass., February

17th, 1889; and also with that of Mark D. Knowiton, of Chicago, Ill., February 15th, 1889. The Patent Office files and records, relating to the Beach application and patent in evidence here, show that the cases of Inman and others *v.* Beach were decided in favor of the latter on the 17th of March, 1890, by the Examiner of Interference, and on May 1st, 1890, his decision was affirmed on appeal and hearing had before the Board of Examiners-in-Chief, and lastly and finally on the 10th of September, 1890, the Commissioner of Patents by an opinion filed affirmed the decision of the Board of Examiners-in-Chief on hearing final appeal; thus, every opinion and decision in the Patent Office was in favor of Fred H. Beach, and on the 9th day of October, 1890, in view of the several decisions the several interference proceedings were finally dissolved leaving Mr. Beach with a record of priority of invention over all contestants.

On the 7th day of November, 1890, Beach caused the then pending drawings, specifications and claims forming his application to be cancelled, and filed amended drawings, specifications, and claims after the close of the several contests, and with it a letter of proper explanation justifying the act, entitled "REMARKS," which will be found on pp. 228-229 Trans.

☞ Following the contests already referred to, Horace Inman, with one Gustav L. Jaeger, both parties to the interference proceedings after the last and final decision in the Patent Office before referred to, jointly brought suit in the United States Circuit Court in the Northern District of New York on or about the 2nd day of October, 1890, whereby they sought to secure a decree to set aside the patent to Beach, and also for a decree of that Court awarding the patent for the invention in question to themselves (Inman and Jaeger), but after voluminous proofs taken on the part of petitioners and respondent, the case was finally disposed of in favor of Beach by Judge Wallace on the 15th day of November, 1892. (See Trans., p. 80.) On or about

the 26th day of May, 1891, because of a defect in the drawings of the original patent, the same was reissued, for the purpose of curing the defect which had been inadvertently caused by the draftsman. (Beach, p. 106 R. D. Q., and A. 57-62, p. 87 Trans., Rec.)

The first, second, third, fourth, fifth and seventh claims of the complainant's patent have been sustained on final hearing by Judge Coxe in the Northern District of New York, based upon a record consisting of 1,397 pages of evidence, including fifty U. S. patents, four English and two German patents as anticipatory, and after the most elaborate and exhaustive arguments on the part of defendant's counsel, the Court sustained every claim of the patent upon which the suit was based. (See opinion of the Court, Trans. Rec., pp. 286-296 inclusive.)

From the decision of Judge Coxe an appeal was taken, presented and was argued before Judges Wallace, Lacombe and Shipman at the October Term, 1895, of the United States Circuit Court of Appeals, in the Second Circuit, which appeal resulted in the rendering of another opinion by said Court which fully sustained the decision of Judge Coxe. (See Opinion of Judge Lacombe at pp. 296-303 Trans. Rec.)

On the 16th day of June, 1896, motion was made based upon bill of complaint, and other papers and exhibits, for a preliminary injunction in the case of Beach *v.* The Inman Mfg. Co. *et als.*, in the Northern District of New York, based upon the first, second and third claims of the said Beach Reissue No. 11,167 by the defendants, which were provided with a horizontally arranged reciprocating plunger carrying at its forward end a roller die, that is to say a wheel, or roller provided with a groove around its peripheral face, with diverging faces corresponding to the form of the lower anvil upon which the box corner rests during the practical operations of the machine, and it was also provided with a shearing or severing device formed upon, or by utilizing the peripheral edge of the side-

face of the roller die nearest to the feeding mechanism, which severing device served to cut from the ribbon of paper the desired length of strip to be applied and secured upon the apex of the box corner.

It was contended for defendants in that case that the machine was not an infringement, because of the character of the die or grooved roller used by them, and, because also of the form of the cutting mechanism. This case was disposed of by the granting of a restraining order on the date last previously referred to, prohibiting defendants from making, using, handling, or disposing of such machines, although giving defendants' counsel an opportunity for further and more full arguments and facts to be presented on the 8th of September, 1896, in order that they might prepare and present their defense as fully as possible. On the date last named, the case was further and elaborately argued by able counsel for defendants, which resulted in the rendering of an opinion by Judge Coxe on the 12th day of the same month, by which opinion and decision (75 Fed., 840-842) the Court held that the defendants, notwithstanding modifications and changes made in their machine, which differed in structural details from the former one, it still infringed, and an order for an injunction was granted. This decision was followed by an appeal to the Circuit Court of Appeals and there affirmed by full bench (opinion by Judge Wallace, 24 C. C. A., pp. 408-409) since which decision a final decree has been entered against defendants for a perpetual injunction and an accounting.

Suit was also brought by Mr. Beach against Eugene Gebercaux and also against Mayer and Breyer in the Southern District of New York based upon the first, second and third claims of the Reissued Patent to Beach, which has been sustained, and injunctions granted and issued in each case.

The language of the claim infringed in the present case is as follows:

" 1.—The combination, with opposing clamping-dies, " having diverging working faces, of a feeding mechan- " ism constructed to deliver stay strips between said " clamping-dies, and a pasting mechanism for render- " ing adhesive the stay strips, said clamping-dies being " constructed to co-operate in pressing upon interposed " box corners the adhesive stay strips substantially as " described.

" 2.—The combination, with opposing clamping-dies, " having diverging working faces, said clamping-dies " being arranged to co-operate in pressing adhesive " fastening strips upon interposed box corners, a feed- " ing mechanism constructed to feed forward a con- " tinuous fastening-strip, and a cutter for severing the " said continuous strip into stay strips of suitable " lengths, substantially as described.

" 3.—The combination, with opposing clamping-dies, " having diverging working faces, said clamping-dies " being arranged to co-operate in pressing an adhesive " fastening-strip upon the corner of an interposed box, " a feeding mechanism constructed to feed between the " dies a continuous fastening-strip, a pasting mechanism " for applying adhesive substance to the strip, and a " cutter for severing the strip into stay-strips of suit- " able lengths, substantially as described.

" 6.—The combination of opposing clamping dies " having diverging working-faces constructed to co- " operate in pressing an adhesive stay-strip upon an in- " terposed box corner, one of said clamping dies being " constructed to act with an elastic or yielding pressure " to enable the dies to operate upon the box-corners of " different thicknesses, substantially as described."

ABSTRACTS FROM THE EVIDENCE.

Concerning the chief characteristics of the first three and the sixth claim of the patent, Mr. Brevort testifies (Trans. p. 14 as follows):

"Turning to the claims to which the question directs "me, I find that the first claim is for a combination of "parts, the parts being as follows:

"First.—Two opposing clamping-dies having di- "verging working faces.

"Second.—A feeding mechanism which delivers the "stay strip between the clamping-dies when the upper "die is raised, and;

"Third.—A pasting mechanism.

"The clamping-dies are to be so arranged as to co- "operate with one another, and to press a stay strip "upon a corner of a box when the said box is placed "between the dies. Thus it is not every set of dies or "every feeding mechanism, or every pasting mechan- "ism, which the claim includes, but it does include "such devices only when adapted for the performance "of the operation described in the patent. To save "repetition, I will say that this statement is true of all "the claims under consideration.

"The second claim is also for a combination. The "combination including the dies, the feeding mechan- "ism, and the cutter for cutting from the continuous "stay strip a piece sufficient for each box-corner.

"The third claim includes the same dies, the feeding "mechanism, the pasting mechanism and the cutter, or "shears.

"The sixth claim includes the same two opposing "clamping dies, having the diverging working faces, "and with a spring in one of the dies to enable the die "to act with an elastic or yielding pressure, so that "boxes of different thicknesses may be operated upon."

Mr. Brevoort, after having compared defendants' machine with the first three and the sixth claim of the Beach patent, commencing at pp. 16–17 Transcript, says as follows:

"Turning now to the claims it will be seen that the "defendants' machine contains two opposing clamp- "ing dies, having diverging working faces which are "clearly the equivalent of the dies of the patent, the "upper die being movable. The defendants' machine "has a feeding mechanism which delivers the stay-strip "between the clamping-dies when apart, and a past- "ing mechanism to apply paste to the stay-strip. "The clamping dies are arranged so that they co- "operate in pressing the stay-strip upon the interposed "box corner. The lower clamping die is to be within "the box corner, and the upper clamping die is to "press the stay-strip upon the exterior of the box "corner. This is the combination of the first claim, "and it is found in the defendants' machine."

"The second claim involves the same dies and the "same feeding mechanism, but for the pasting mechan- "ism of the first claim the second claim substitutes "the cutting mechanism for severing the stay-strips into "suitable length. This combination the defendants' "machine contains."

"The third claim involves four elements, to wit: "The opposing clamping dies, the feeding mechanism, "the pasting mechanism and the cutting mechanism. "All these parts are found combined in the same way "in the defendants' machine."

"Turning now to the sixth claim I find in the de- "fendants' machine two opposing clamping dies having "diverging working faces, the upper one of which is "constructed to act with an elastic or yielding pressure "to enable the die to operate upon box corners of dif- "ferent thicknesses. This is the combination referred

" to in the sixth claim, and it is found in the defendants' " machine."

" In my opinion the defendants' machine clearly con- " tains the combination of the first, second, third and " sixth claims of re-issue No. 11,167, the combinations " being the same combinations, the combined parts being " substantially the same parts, operating in the same " way for the production of the same result, and con- " stituting in all respects the combinations specified " in the four claims before referred to of re-issue No. " 11,167. I have noted the difference which exists be- " tween the machines, and I may add that these differ- " ences do not, in my judgment, constitute any sub- " stantial or material dissimilarity, and I do not feel it " necessary to further refer to them, as they are not of " importance when considered in connection with the " combination of the claims under consideration."

☞ "The description of the re-issue in suit clearly " points out the work to be performed by the parts, which " are combined in the various claims. In the defend- " ants' machine this identical work is to be performed, " and the same parts are present for the performing of " the same operations. That the parts differ in their " mechanical details is not of importance, for the like " parts are present in both machines and they perform " like duties and functions."

Defendants set up as defenses in the Courts below the following: (1) That the re-issue was unlawful. (2) That the patented mechanism of Beach did not require invention. (3) That the first, second and third claims are void. (4) That Beach was not the first inventor or discoverer of the machine patented. (5) That the defendants gave notice upon the record (p. 7 of Transcript) that they would rely upon the following patents as anticipations, to wit: No. 19,270, dated February 2nd, 1858, to Elisha Waters. Re-issue No. 1,212, dated July 9th, 1861, to Elisha Waters.

No. 148,416, dated March 10th, 1874, to Jospeh Cohn. No. 166,940, dated August 24th, 1875, to Charles E. Sawyer. (6) That no invention or discovery is described or shown in the specification or drawings of Reissue Patent No. 11,167, so far as it relates to the first, second and third claims thereof. (7) That the patented machine of complainants was in public use and on sale for more than two years prior to the application for the re-issue patent, and (8) Defendants deny infringement.

Mr. Fowler, defendants' expert, states under cross-examination in his evidence commencing at 13 x Q., page 72 of Trans., that possibly the Sawyer patent was the nearest approximation of the first claim of complainant's patent. In 15 x Q., p. 72, he further states that the Sawyer patent of 1875 and the Gates patent of the same year most nearly approximates the second claim of the said Beach patent, admitting in answer to 17 x Q. that the Sawyer patent is as near a substantial anticipation of the second claim as any of the exhibits bearing upon the same. The Haddan English patent of 1884 was also referred to by Mr. Fowler, as an anticipation of the second claim.

In 24 x Q., p. 74 of Trans., Mr. Fowler was asked which of the several patents or machine exhibits put in evidence by defendants most closely approximates the third claim of the Beach patent, and he said: "I make the same reply as I have already made to similar questions referring to claims one and two, that is, the Sawyer, Gates, Beecher & Elliott," admitting in his explanation that neither one of the patents show the same combination as described and shown in complainant's patent, also admitting that the Gates and Sawyer patents are substantially alike so far as the supposed invention is concerned. Mr. Fowler also admits that the patent to Smith No. 206,145 is probably as near an approximation as any of the exhibits in evidence.

Now, as a matter of fact, the Sawyer patent and the English patent to Haddan, which Mr. Fowler, defendants' expert, considers as the closest approximation to

the first, second and third claims of the Beach patent, were ably presented by defendants' counsel in the New York cases and full arguments made thereon, and such were considered by the courts at the final hearing, before his Honor, Judge Coxe, and also before the Circuit Court of Appeals. Yet, the courts held that they were not anticipations, or, in other words, did not show the invention set forth in the first, second and third claim of the Beach patent. (See pp. 286 and 296 of the Transcript.)

Later on, by consent, Mr. Fowler was again called to the stand for the purpose of testifying concerning certain other patents not formerly set up in defense, but subsequently admitted by consent of complainant's counsel in order that the Court might have the entire anticapatory art before it as it was previously known, whether patented or otherwise, and the following additional patents were put in evidence by consent (see pp. 184-185 of the Transcript):

U. S. Patent to M. D. Knowlton, March 10, 1891, No. 447,955, with File Wrapper and Contents; U. S. Patent to Maxfield; U. S. Patent to Terry; U. S. Patent to Welch; U. S. Patent to Dennis & Yorke; U. S. Patent to Zacharias; U. S. Patent to Sill; U. S. Patent to Bailey; U. S. Patent to Farquharson, and British Patent of April, 1888, to Jaeger, all of which patents were before the courts in New York and Boston and were fully considered by the Circuit Courts of Appeals in three cases, to wit: Beach *v.* American Box Co. *et als.*, 18 C. C. A., 165; Beach *v.* Horace Inman *et al.*, 78 Fed., p. 923; 92 Fed., 146; Beach *v.* Hobbs *et als.*, 92 Fed., 146.

Mr Brevort was again called to reply to the statements of defendants' expert concerning his testimony based upon the introduction and consideration of the several patents and file wrappers last referred to, giving a very careful and detailed reply, commencing at Q. 3, p. 186, and ending at the top of page 191 of the printed transcript, who states that neither one of the several patents

in suit contained the combination of either one of the claims upon which this suit is based.

As to the originality of the patented invention of Beach, we have already shown that he was in interference in the United States Patent Office for about five years, and that he was the successful applicant before every tribunal therein from the beginning to the end, and it is evident, that if there was anything anticipatory of the several claims known there he would have been rejected accordingly by the Patent Office.

The importance and value of the Beach patented invention is testified to by at least 11 prominent paper box manufacturers, whose factories are located in different cities of the United States. One of these witnesses, Mr. Jencks, of Providence, R. I., has been in the business of manufacturing paper boxes more than 41 years, and two others (Dickermann and Barnes) more than 30 years each, and one more than 26 years, and three others from 8 to 15 years in the business of making paper boxes, and all swear, that the Beach patented invention is *indispensable* to the trade, and that no concern *without* one can successfully compete *with one having such machine.*

Certain patents for machines for wiring the corners of boxes were put in evidence in this case by defendants, describing and showing mechanism for applying wire staples to the corners of boxes by forming and thrusting such staples through the paper or material of which the boxes operated upon are made, and clinching the same. Yet no one of them is capable of applying, or in any wise adapted for handling, stay strips of paper or muslin; neither is it possible for them or any of them to be changed into machines for applying

paper and muslin strips without entire remodification, and the addition of other essential parts.

Obviously the nearest approximation of the wire stapling machines to the combination of the claims in question is the English patent of Haddan, and concerning this Mr. Brevoort says, at pp. 93, 94 of the Transcript:

"The next and last class of patents to which Mr. "Fowler refers is that class which is adapted for sewing "or inserting metal staples, or the like, into the cor- "ners of boxes, or into the books for the purpose of bind- "ing. These patents consist of the Lieb patent, the "Cohn patent and the English patent of Haddan. I "suppose that these patents have been introduced in "evidence in this case because they show, for, example, "in the Lieb patent, Fig. 2, the right-angled male die, "which is one of the things used by Beach; and in the "Cohn patent they show a male die having right-angled "faces and a die above it, being a female die, having "portions of its face at right angles to each other. But "these dies as they are shown could not perform the "operation which is set forth and described in the "Beach patent, for the female dies are arranged so as to "be operated in connection with stapling appliances of "some kind or another, and are not adapted for the "performance of the work described in the Beach "patent.

"The Brewer patent also shows a right angle male "die, but without any co-operating right angle female "die.

"The English patent of Haddan has a right angle "male and female die, but the operation of the device "relates entirely to wire stitching, and is not addressed "to the box art, nor to the feeding of a gummed strip, "nor to the attaching by glue of a gummed strip on a "box or box cover.

"The mere existence of dies in the earlier mechan- "isms in no way shows or describes the invention of "the Beach patent; and the existence of such machines

"as are referred to by Mr. Fowler for the purpose of "stitching does not either show, nor hint at, the Beach "invention, but as a separate and distinct object and "purpose, the machines themselves being clearly dis- "tinguishable from the Beach machine, being made for "a different purpose, and operating in a different way."

Complainant shows by an abundance of evidence that wiring machines are not of the character of the apparatus patented by Beach. No less than ten witnesses have testified in this case that the wiring machines do not and cannot serve the purpose of the Beach invention. The puncturing of the boxes near the corner weakens the material, and the box is not reinforced or strengthened in the slightest degree, neither will the staples serve for a fine class of work; they are also objectionable, in that they project or lay above the surface of the box proper, and the clinched staples therefore interfere with the operations of and with the proper fitting of the cover, etc., also rust and discolor the covering paper with which the box is usually finished.

Some of these witnesses have testified that they had used wire stapling machines for wiring the corners of paper boxes together, as a cheaper method of uniting the corners, than the application of stay-strips of paper and muslin as such were and had been applied to boxes prior to the Beach invention. The "wire staying," however, although a comparatively new method, would not serve for fine boxes, and were only used for an inferior grade or class of box, and most of those who had such wiring machines, disposed of them or ceased to use them after procuring the Beach patented Corner Staying Machine. (See testimony of Barbour and others.)

Some of the many desirable and important advantages secured by the invention of Mr. Beach, and strongly sustained by a large

number of the leading paper box manufacturers who have testified here, may be stated thus:

(1) The Beach machine applies and secures corner stay strips of paper and muslin more rapidly than is possible to be done by hand, which was the only known method of applying such strips to the corner of paper boxes prior to the Beach invention.

(2) The work done by the machine is stronger than that done by hand.

(3) It does the work cheaper or at a much less cost than is possible when done by hand.

(4) It does the work cleaner than that done by hand.

(5) It does work that is more regular and square than is possible to do by hand.

(6) The work done by the machine is more uniform and smooth in character than that done by hand.

(7) The machine presses the strip rigidly about the corner, so as to form, as it were, an integral part of the material of which the box is formed.

(8) An operator with the Beach machine can stay nearly ten times the number of boxes than can an operator performing the same kind of work by hand.

(9) The Beach machine by reason of the proper compression of the strip upon the corners drives out the moisture and dries the box for immediate use.

(10) By the proper compression of the stay strip, which can be done only by machine, a lighter covering paper for final finish can be used than is possible when the staying is done by hand, as the strips may be compressed without strain and to a perfect level with the surface of the box proper.

(11) By the use of the Beach machine a great saving of material is assured over hand work by reason of cutting the strips of the proper lengths instead of tearing, as in the old method by hand.

(12) By its use a more perfect and uniform application of pasting material to the proper parts is assured than is possible when applied by hand, consequently a corresponding saving of adhesive material.

(13) By its use the boxes can be handled for use at once, whereas by hand the operators must wait for the drying, which is more or less slow, according to the conditions of the weather, whether dry or damp atmosphere.

(14) By its use a heavier, more desirable, and stronger material may be applied as a stay, than is possible where the application is to be made by hand.

(15) It is impossible to properly apply by hand the strong and heavy material desirable for use and which is used in connection with the Beach machine for staying the corners of boxes.

The following extracts from the testimony of leading paper box manufacturers of various parts of the country, show the value of the invention to the trade:

Ebenezer Spooner, of New York, 27 years as a manufacturer of paper boxes, states, that the first machine he ever knew capable of automatically staying the corners of paper boxes with paper, muslin, etc., was invented by Fred H. Beach, and that he has had such machines in use at his factories ever since they were first introduced to the public. Mr. Spooner considers the invention a great labor-saving machine and a machine capable of doing better, more uniform, and much superior work than was possible by

any previous known means. He further states, concerning labor saving, that a boy with the Beach machine will set up 6,000 boxes as against 1,000 in the same time by any of the best methods known to the trade prior to the Beach invention. He continues by saying that by use of the Beach machine, the stay strip is made to adhere to the corner of a box with a much greater degree of firmness, a greater degree of uniformity and superiority of finish than was possible prior to the Beach invention, and that no firm or concern engaged in paper box making can afford to be without it. Its usefulness and great value has given it a reputation and prominence in nearly all of the leading box-making establishments throughout the country. (See Q. and A. 3-5, pp. 97, 98 of the Trans.)

Mr. Spooner had three of the Beach machines in use at the time of testifying. (See Q. and A. 20, p. 99.)

Mr. Spooner also had two of the first machines made by Beach under his patent, and used them until they were worn out. He bought the first machine prior to 1888. (See Q. and A. 24-25, p. 99; and also Re-D. Q. 46, 49, p. 101, he states that he used them for several years in a practical way.)

J. D. Otis, of Orange, N. J., a manufacturer of paper boxes for 14 years, states that the first machine he ever knew for automatically staying the corners of paper boxes was invented by Mr. Beach. Mr. Otis had a Beach corner staying machine in use, which he states would do from five to six times the amount of work formerly done by hand. (See Q. and A. 4-5, p. 104 of the Trans.)

C. B. Baldwin, 15 years connected with the manufacturing of paper boxes, and at the time of testifying had been eight years actively engaged in the manufacture of paper boxes in the firm of Eli Baldwin

& Son, 138 Fulton St., N. Y. City. He states that the Beach corner staying machine has been in use at that factory ever since the fall of 1889, where it has been used continuously. Previous to the use of the Beach machine, the corner staying was done by hand. He states that the stay strip applied by machine can be put on more rapidly, at less expense, more securely, and more uniformly than *is possible* to be done by hand. He further states that, by use of the Beach machine, the boxes can be handled immediately after the corners have been stayed, and that the finish is far superior to that done by hand. (See Q. and A. 8-14, inclusive, p. 108). Mr. Baldwin states that he had never heard of any machine capable of staying the corners of boxes with the stay strip of paper or muslin, prior to the one invented by Beach. (See Q. and A. 16, p. 109 of the Trans.)

C. W. Jencks, of Providence, R. I., 41 years in the business of manufacturing paper boxes, also the oldest manufacturer in the New England States and Vice-President of the Paper Box Makers' Association and more or less acquainted with the box manufacturers of New England. (See p. 113, Q. and A. 2-5, inclusive.) He states that the means adopted at their establishment for staying the corners of boxes with stay strips of paper and muslin, is 99 per cent. by the Beach machine, a few are still done by hand, and some by wire. The first machine he ever knew of for attaching stay strips to the corner of paper boxes was the Beach machine. He has used such machines for five years, and knew of them perhaps a year before he first procured one. (See Q. and A. 8-10, p. 114.) He states that, prior to the introduction of the Beach machine, strips of paper and muslin were pasted and applied one by one with the fingers, and pressed by the same to the corners of the boxes; that a boy would do as

much in two hours on a Beach machine as a girl would do all day by hand, but her work bore no comparison to the work done on the machine, the latter doing the work much better, more uniformly and regularly than that done by hand. He also states that the strips were liable to slip, being without pressure, and a stronger glue was required to be used, in place of a cheap paste, when done by hand; that difficulties arose and great pains had to be taken in rubbing down the corners to make them adhere; that the machine work is also very much better and stronger than work done by hand. He further states that "the Beach machine is of great importance to the trade generally, and I do not see how any box maker could get along without it." (See pp. 114, 115, Q. and A. 8 to 22 inclusive.) Mr. Jencks states that he does not think any one would ever buy a stapling machine if they could get one of the Beach corner staying machines. He would be glad to discard both of his wiring machines in favor of the Beach machine. (See Q. and A. 55, p. 118 of the Trans.)

Walter S. Barnes, of Boston, Mass., who has been engaged in the manufacture of paper boxes ever since November, 1861, and who is Second Vice-President of the New England Box Makers' Association, states that prior to the introduction of the Beach Corner Staying Machine such work was performed by hand. He is personally acquainted with all of the principal box manufacturers in the City of Boston and also a large portion of the box makers in other cities in the State of Massachusetts, as well as in other places in the New England States. (See Q. & A. 3-7, p. 119.) Mr. Barnes also states that a Beach machine will accomplish from *five to six times more work than could be accomplished by hand; it also makes a much neater finish than hand work. It also possesses another advantage, in that the work can be used immediately; whereas, that done by hand must be thoroughly dried before the box can be handled; moreover,*

the work done by the Beach machine is perfectly uniform, while the hand work never can be uniform. He also states that no box manufacturer can afford to do without the Beach Corner Staying Machine. He never knew a machine, prior to the production of the Beach machine, that was capable of staying the corners of paper boxes with short stay strips of paper or muslin. (See Q. & A. 7-13 inclusive, pp. 119, 120.) Mr. Barnes also states that the trade recognized the need of a machine that would be a labor-saving machine for automatically applying stay strips on the corners of paper boxes. (See p. 121, x Q. & A. 20.) *He also states that he had a wiring machine in his factory for several years previous to March, 1893, and that the same did not give satisfaction; customers objected to the work, and that it was constantly getting out of repair, and that it did not perform the work of staying even as well as that done by hand, that it is his opinion that very few are using the wiring machine,* and that those who are using them, is because they happen to have them on hand. (x Q. & A. 23-26 inclusive, pp. 121, 122 of the Transcript.)

C. A. Brackett, of West Newton, Mass., with factories at No. 144 High Street, Boston, Mass., has been engaged in the manufacture of paper boxes since 1867 (26 years) and is a member of the New England Box Makers' Association. Prior to the invention of the corner staying machine by Beach, the application of stay strips of paper or muslin to the corners of boxes was performed by hand (See Q. & A. 1-7 inclusive, p. 122.) Mr. Brackett testified concerning the Beach machine as follows: (See Q. & A. 10-12 inclusive.)

"Int. 10. What, if any advantages have you found by your experience in the use of the Beach machine for staying the corners of boxes over similar work done by hand?

Ans. In the first place, they are more uniform in regard to work, and there is a great saving in the ma-

terial and a great saving in the labor. A girl would stay up a thousand boxes probably in the old way, and from six to seven thousand in this way with the Beach machine.

Int. 11. How about the stability and durability of the work, as done by hand, and that done by the Beach machine? Which, from your experience, is the best?

Ans. I think the Beach machine work gives better satisfaction.

Int. 12. So far as your knowledge extends, what machine, if any, existed prior to the Beach invention for staying the corners of boxes, that was capable of automatically feeding and directing a strip to the corners of a box presented to be stayed or reinforced at its corners, and the strip severed, placed in position, and automatically fastened upon such corners?

Ans. The Beach machine was the first and only machine."

Mr. Brackett has two of the Beach machines in use, purchased the first one July 25th, 1889, and the second one was bought early in 1893, *both of which are for applying the stay strip upon the exterior or upon the outside of the corner of a box* and not over the edge and inside. (See x Q. and A. 17-18, p. 124.) Mr. Brackett says of the wiring machine as follows: (See Rd. Q. and A. 32 to 34 inclusive, p. 125.)

"Int. 32. Have you ever seen paper boxes that have been wired at their corners by a machine?

Ans. I have.

Int. 33. What can you say concerning their value, as compared with boxes whose corners are stayed by strips of paper or muslin by the Beach machine?

Ans. They are not good for anything only for very cheap work, and are not to be compared with work done by the Beach machine. They are not satisfactory to customers, and for covered work the wire breaks through.

Int. 34. What about the liability of the wire to break

out at the corners of boxes, when used for uniting the corners of such?

Ans. Twenty-five per cent. of them will break out."

George H. Dickerman of Somerville, Mass., with factories at Canton and Boston, Mass., has been engaged in the manufacture of paper boxes since 1855 (38 years) and is President of the New England Box Makers' Association. He purchased his first Beach corner staying machine in November, 1888, and states that prior to that time the stay strips of paper and muslin were applied to the corners of paper boxes by hand, and that *no machine existed capable of automatically applying such strips upon the corner of boxes prior to the date of the Beach invention.* Mr. Dickerman also states that they save fully 60 per cent. in labor, and about 50 per cent. in stock, by the use of the Beach machine, over the old hand method. (See Q. & A. 1-9 inclusive, pp. 125, 126.) *He has eight Beach machines in use, all of which are used for staying the strips on the outside only.*

Herbert B. Chaffee, Supt. of the Dickerman Company, paper box manufacturers of Boston, Mass., producing 50,000 paper boxes in a day, says: that he knew of no machine prior to the invention of Fred H. Beach, that was capable of automatically applying stay strips to the corner of paper boxes, and that all such stay strips were applied and secured to the corner of paper boxes by hand, before the invention of Beach. He also states that the use of the machine cheapens the cost of production, is a great saving in room, and in perfection of finishing the work it is much nicer than by hand, and is much more uniform and regular than the hand work. (See pp. 128, 129, Q. & A. 1 to 13 inclusive.) Mr. Chaffee stated that he had 4 wiring or stapling

machines in his factories, had sold two of them and the others were not in use as they had introduced a better thing in their factory, by the adoption of the Beach Corner Stay Machine, and the stapling machines had gone out of date.

W. Barbour, of Everett, Mass., with paper box factories at 205 Congress St., Boston, manufacturer of paper boxes of all classes. Barbour testifies at pp. 132, 133 of Trans. (Q. & A. 11 to 17 inclusive) that before he bought the Beach Corner Stay Machine he had used a Hobbs Wiring Machine, for fastening the corners of paper boxes, but after a trial with the Beach machines, he sold the wiring machines, which he had been using, for one hundred (100) dollars, for which he had paid two hundred and seventy-five (275) dollars as they did not give satisfaction and the Beach machine did. He also states (See Q. & A. 19, p. 133) that no box factory doing its corner staying by hand could successfully compete with another provided with Beach machine.

M. D. Knowlton, a manufacturer of paper boxes for nearly 30 years, states that there was no machine in existence, prior to the invention of Mr. Beach, that was capable of automatically feeding and applying a gummed strip of paper or muslin, and securing the gum strip securely upon the corners of paper boxes, and that prior thereto all such work had been done by hand. (See Q. & A. 11 to 13 inclusive, p. 138 of Trans.) Concerning the characters and advantages of the Beach Corner Staying Machine over the prior art, I quote from the record (commencing at p. 138 of the Transcript):

"Int. 14. How does the hand work compare with the work performed by the Beach machine?

Ans. It was inferior; the corners of the covers had to be moistened, and they warped badly. The hand work is much inferior to machine work.

Int. 15. What other advantages, if any, has the Beach Staying Machine in staying the corners of boxes by such strips of paper or muslin over like work done by hand?

Ans. The corner stay put on by the machine of paper or muslin is put on practically dry, so that there is no warping or changing of the shape of the corner of the box or cover. This enables the workmen to put on a paper where the boxes are covered in a rapid way, making the boxes perfectly square and the covers fit, making the boxes look neat and perfect. The hand stays would warp and get out of shape and would have to be formed up before covering, and even after covering. In order to make fine work the covers again had to be pressed up into shape when the covers have been stayed by hand."

Mr. Knowlton explains the great gains and other advantages derived by the use of the patented machine of Beach over the old or hand methods, thus:

"Int. 16. How much more rapidly is the work produced by the Beach Staying Machine over that done by hand?

Ans. On a fair and good quality of work an operator would put on from four to six hundred pieces, or rather would make from four to six hundred covers in a day; on the Beach machine that turned in the stay by the Beach patent, an operator could put from four to five thousand in the same time; on the cheapest class of work that is done in factories, where the stay is not turned in to the inside of the box, the girls would do from one to one hundred and twenty-five an hour, and the machine putting on the same kind of a stay, would do about 600 an hour.

Int. 17. How about the strength of the corner of the box stayed by hand as compared with the same kind stayed by the Beach machine?

Ans. The machine work is done a great deal stronger than hand work, excepting in cases where they want a very strong cover; then, using the same material, the strength would be about the same, but the way the machine would put on the corner, making the stay stick solid and close to the corner, would naturally be a great deal stronger than the hand work.

Int. 18. What can you say concerning the pressure applied by the use of the Beach machine, and the pressure applied to a like strip by the fingers? Which of the two methods is likely to most firmly unite strips with the corners to which they are to be connected?

Ans. The machine work. All the pressure that the hand work has is what the fingers give it, and the machine can give it any desired pressure that is wanted.

Int. 19. And it is the pressure that causes the contracting surfaces to unite and intersect the fibers more or less, in accordance with the amount of pressure applied, or is it otherwise?

Ans. The pressure of the machine is the best to unite the stay.

Int. 20. Why do the corners of the boxes become warped, as you have stated, when the operation of staying is done by hand?

Ans. On account of the material that is used; it has to be soaked with the gum or paste, so that it becomes very pliable, and when put on to the box corner it remains where the fingers put it.

Int. 21. Why do not the same conditions apply when the Beach machine is used for a like purpose?

Ans. The stays are put on so rapid that the moisture from the gum or paste does not penetrate the stay strip but is absorbed by the material the box is made of when the pressure is applied.

Int. 22. In the method of applying the stay strip by the use of the fingers, and that by the use of the

Beach machine, which of the two consumed more paste or gum?

Ans. The hand process."

Int. 23. And is it because of the fact that a superfluous quantity of paste or gum is applied when the work is done by the use of the fingers?

Ans. It is.

Int. 24. In what material respect, if any, does the Beach machine, or the one sometimes called the "Knowlton & Beach machine," as made for the last three or four years, differ from the original machine as patented, so far as all the leading elements and combinations, that are set forth in the several claims of the Beach patent, and especially those that pertain to the staying of the exterior corners of boxes, as well as those that relate to the outer and inner stays combined?

Ans. There is no difference."

Mr. Hobbs, one of the defendants in this case, undertook to show that the machines generally sold upon the market as "Knowlton & Beach" corner staying machine, is not the staying machine of the Beach Reissue Patent No. 11,167, and explains his theories accordingly in Q. and A. 14, (p. 148). On cross-examination, however, he admits that the essential elements are the same in both machines, where on p. 149 of the Transcript he testifies:

"Cross-Int. 18. What do you consider to be the main or essential elements in the machine which you have termed the Beach machine for staying the corners of boxes?

Ans. The pasting apparatus, the feeder, cut-off, and the clamp for pressing the stay on the box.

Cross-Int. 19. And the clamp consists of what?

Ans. It consists of a support and a movable part which may be brought to press upon the support.

Cross-Int. 20. And the support, as you have termed it, is for what purpose and of what form?

Ans. The support is for holding the article (box, or cover) clamped, and may be of any form to correspond with the shape of the article.

Cross-Int. 23. Does not the so-called Knowlton & Beach machine contain as essential elements a pasting apparatus, a feeding apparatus, a cutting apparatus, and means for supporting the corners of boxes or covers, and a movable counterpart acting vertically above the support, for compressing the stay strip upon the corners of boxes or covers?

Ans. They do."

The courts held in the Boston and New York suits that the so-called Knowlton & Beach machines were the machines of the Patent (No. 11,169), in suit.

Mr. Knowlton at p. 137 of Trans. testifies:

"Int. 5. When first and under what circumstances did you become acquainted with Mr. Beach?

Ans. The first I heard of Mr. Beach was in 1888, when I applied for a patent on a paper box corner staying machine. I think it was from the Patent Office that I learned his name and residence, though I am not quite certain about that. I do know that my application for a patent was put in interference with one that he already had in the Patent Office.

Int. 6. State the result of the interference referred to between your application and that of Mr. Beach for the corner staying machine?

Ans. The interference was declared in Mr. Beach's favor, on the prelminary statement; that is, the broad claims of the patent."

Again at page 140 of the Trans.:

"Cross-Int. 27. When did you first make the invention

which you set forth in the application involved in the interference wth Beach?

Ans. I think it was in 1886.

Cross-Int. 28. Did you make a machine?

Ans. I did.

Cross-Int. 29. Where was that machine made?

Ans. In Chicago, Illinois.

Cross-Int. 30. Where and by whom?

Ans. E. P. Peacock, at 145 South Clinton street, Chicago.

Cross-Int. 31. I suppose it was some months after your first conception before that machine was built?

Ans. Yes, sir.

Cross-Int. 32. In what month was it begun?

Ans. In the Spring of '87, I think.

Cross-Int. 33. Was it '87 or '86?

Ans. '87.

Cross-Int. 34. How did you come to make that invention?

Ans. We needed a machine, and I had thought for a good many years that it would be a good thing to have; tried the wire stay myself, and found it impracticable, and in working on the other machinery that handled paper, I discovered that I could feed a stay strip. That started me in to build the machine."

Fred H. Beach testified at page 79 of the Trans.:

"Int. 3. When first did you construct and put into practical operation a machine for staying the corners of boxes of the kind and character described and shown in the said original and reissued Letters Patent referred to in my last previous question?

Ans. I first constructed the machine of this description in the Fall of 1885, and put the machine into practical use in the Spring of 1886.

Int. 4. Where were you living at the time you made the first practical operating machine, and where and by whom was it first used?

Ans. At Rochester, N. Y., and the first machine was

used under my direction at the Seed Warehouse of James Vick, Rochester, N. Y.

Int. 5. State whether or not the said machine operated successfully at the Seed Warehouse referred to?

Ans. It operated successfully, and was used to stay up a great many boxes, at least more than 30,000."

☞ The original application of Beach for a patent was filed June 10th, 1885, in the Patent Office.

The Patent Office decided that the Knowlton machine contained the invention of Beach, the United States Circuit Court, and the United States Circuit Court of Appals have also decided the same question in favor of complainant, Beach, notwithstanding the Knowlton feeding mechanism was of different form from that shown in the Beach patent and differently located. The Knowlton feed being substantially the same as the feeding device of defendants in this case, which was rejected on the old patent to Van Geasen of 1877. (See p. 265 Trans.)

Beach established a new Art, and the Circuit Court and the Circuit Court of Appeals have so held that he was the first to devise a mechanical apparatus for doing a class of work that previously had always been performed by hand.

Mr. Spooner was asked on cross-examination at p. 99, question 15, "Now, what other ways were there, prior to the advent of the Beach machine, of giving strength and rigidity to paper box corners?" A. "None." Question 16. "Are you quite sure of that?" A. "I know of none." Question 19. "The Beach ma-"chine, then, simply does mechanically what was there-"tofore done by hand, so far as your personal knowl-

"edge is concerned; is that correct?" A. "Yes." (It should be remembered that Mr. Spooner has been in the manufacturing of paper boxes since 1866.)

J. D. Otis was asked at page 104, in question 4, "Who, if you know, produced the first machine for "automatically staying the corner of boxes with paper, "muslin, etc.?" A. "The first I ever knew of was a "machine invented by Fred H. Beach."

C. B. Baldwin, at p. 109, question 16, "State whether "or not you have known of any machine capable of "staying the corners of boxes with a reinforce strip of "paper or muslin over and upon the corners of boxes "prior to the invention of Fred H. Beach?" A. "The "machine invented by Fred H. Beach is the first ma- "chine about which I have any knowledge, for the "purpose of staying the corners with paper or muslin."

Mr. Jencks also stated that Mr. Beach was the first to make a machine for automatically applying short stay strips to the corner of boxes.

W. S. Barnes, at page 120, question 12. "What, if "any, machine, so far as your knowledge extends, ex- "isted prior to the invention of Fred H. Beach for "staying the corners of boxes, that was capable of feed- "ing from a reel a ribbon of paper or muslin, towards "a support adapted to sustain the corner of a box upon "which a portion of the ribbon was presented, severed "from the ribbon, placed into position and firmly com- "pressed to the corner of the box automatically?" A. "I have no knowledge whatever of any machine such "as described previous to the Beach invention."

H. B. Chaffee, at p. 128, question 7. "What, if "any, machine existed, if you know, prior to the pro- "duction of the Beach corner staying machine, that "was capable of automatically feeding from a strip or "ribbon of paper or muslin, that severed and applied

" the strip to the corners of paper boxes?" A. "I didn't " know of any."

See also testimony of C. A. Brackett, G. H. Dickerman and M. D. Knowlton, to the same effect.

Mr. Brevoort says: " that Mr. Beach by the production of the machine of " his patent did, as a matter of fact, es- " tablish a new Art ";—he also says (at p. 95 of the Transcript) that

☞ " Mr. Fowler (defendants' expert) has not produced nor referred to as a part of the art said to have been established by Beach a single machine adapted for attaching short stay strips to the corners of boxes. He has shown shoe machines, box machines, tag machines, and various kinds of machines; but he has not shown one example that existed before the date of the application by Beach for a patent of a machine for attaching stay strips to boxes; and the art as he has shown it leaves Beach in the position of a primary and first inventor, therefore in this regard entitled to the broadest consideration as having produced for the first time a machine which would do by mechanical means that which had theretofore been done by hand. It is immaterial to say that mechanism taken from other arts by Beach were simple mechanism well known to mechanics, because although Beach did take such simple and well known mechanisms, he combined them into an entirely new machine, a machine which never had existed before, and for accomplishing a purpose which had never been accomplished before the date of the Beach invention by any machine whatever. Therefore, he is not to be judged as would be an inventor who has merely added an improved lever or device to an old form of machine. He is to be judged in the light of a man who for the first time has produced a machine adapted for an entirely

new, novel, and useful purpose. Therefore, however simple his elements are, he is to be regarded as a pioneer inventor in a wholly new act, not as an improver in an old art."

Mr. Brevoort referring to the statement of Mr. Fowler (defendant's expert) where he testifies that the combination of the spring with other elements of the first, second and third claims as set forth in the sixth claim of the Beach patent did not require invention (p. 96) says:

"I agree with him (Fowler) to this extent. The application of a spring to an old piece of mechanism where the spring would be serviceable would not require invention. But in this case I think that the combination of the sixth claim is clearly distinguishable from anything in the art, because it was new to combine clamping dies having the particular form of face here recited, with a mechanism for attaching stay strips to boxes.

"Now, this being a new and basic discovery of Beach's, he has an entire right to combine with this new mechanism a spring as an element of the combination, if that spring performs some useful work in that combination. His combination being new, the addition of the old element thereto constitutes a novelty which would not be found were the spring merely combined with some old and well-known mechanism; and, therefore, though I agree with Mr. Fowler, generally speaking, that the addition of a spring does not involve invention, *I think that in this particular case the addition of a spring did invoke invention, because it is found in a combination which is wholly novel outside of the spring."*

Judge Coxe in his opinion in the New York cases, said:

"Suppose Beach's machine had never been built, the "art, unless some of those who claimed to be prior "inventors in the Patent Office had supplied the want, "would be in the primitive state that it was before 1885, "No other machine could take its place. The fingers of "women and children would still be doing work of the "'opposing clamping-dies.' Has not the art been ma- "terially advanced by the contribution of Beach? The "proposition cannot be maintained that the ingenious "mechanism which has revolutionized this branch of the "trade is only the product of mechanical skill."

Judge Lacombe in speaking for the United States Circuit Court of Appeals, uses these words in its opinion (p. 300 of Transcript):

"The three first claims are broad ones, covering the "particular combinations referred to without any re- "strictions to the details of mechanical construction, and "defendants concede that, if these claims are to be sus- "tained broadly as they are expressed, they are in- "fringed. As to this first set, therefore, the only ques- "tion is whether in view of the state of the art, Beach "was entitled to appropriate as broad a combination as "he has set forth in his first three claims, which cover "every device for affixing stay-strips to the outside of "box-corners, where the operation is performed by the "combined action of a feeding mechanism, a cutting "mechanism, and a pasting mechanism, in combination "with any opposing clamping-dies whose faces diverge.

"The Circuit Court sustained these broad claims, and "we concur in this decision."

BRIEF OF POINTS AND FACTS.

I.

The combination of elements embraced in the first, second, third and the sixth claims of the Beach patent being new, useful, and almost indispensable in the paper box making business, the strustures constituting the inventions are clearly patentable, are not anticipated, and the claims are therefore good and valid.

Barbed Wire Patent, 143 U. S., p. 283.
Gandy *v.* Belting Co., 143 U. S., p. 594.
Krementz *v.* Cottle, 148 U. S., p. 560.
Potts *v.* Creager, 155 U. S., p. 609.
Du Bois *v.* Kirk, 158 U. S., p. 63.

II.

The feeding mechanism of defendants' machine is that of the patent to Beach. The Knowlton application, put in interference with that of Beach, contained the same feeding mechanism with claims therefor (11-12, p. 262, Trans.), which claims were rejected by the Patent Office (p. 265, Trans.) as anticipated by the patent to Van Geasen of 1877, consequently a known substitute and an equivalent for the feed of the Beach patent; therefore it was not new with Horton, moreover, Horton did not undertake to claim it in his application for a patent. It is therefore contended that the feed of defendants' machine is the equivalent of that described in the Beach patent.

Justice Blatchford in Morley *v.* Lancaster, 129 U. S., 273.
Justice Jackson in Miller *v.* Eagle Co., 121 U. S., 207.
Justice Curtis in Foster *v.* Moore, 1 Curtis C. C. Rep., 291.
Judge Sawyer in Carter *v.* Baker, 4 Fish, 409.
Judge Sprague in Johnson *v.* Root, 1 Fish, 363-364.

III.

The feeding device of defendants' machine was, at the date of the Beach application for a patent, a known substitute for the feeding mechanism of the patent. See action of the Patent Office in its rejection of the Knowlton claims for same feed at p. 265, Trans., on Van Geasen Patent of July, 1877. See also the opinion of Judge Colt in the Court of Appeals; also the Van Geasen Patent on the last pages of this brief.

O'Reilly *v.* Morse, 15 How., 123.
C. C. A. in Rogers *v.* Linotype Co., 64 Fed., p. 803.

IV.

The words "substantially as described" in the claims of the Beach patent, do not impose limitations that justify the court in not including the combinations of defendants' machines, for they contain all of the factors of the Beach combination in the same arrangement, for the same purposes, and they accomplish the same results.

Telephone Cases, 126 U. S., 537.
Corn Planter Patent, 23 Wall 181
Metalic Co. v Brown, 104 Fed. 350-351.

V.

The request of the Examiner in the Patent Office for the insertion of the words "substantially as described" after each of the elemental mechanisms recited in the first, second and third claims of the Beach application, was not pressed; on the contrary, it was waived by him, and the applicant was not required to eliminate from the specification of his application the notice to the public, which appears in the patent at page 443 of the Transcript, wherein he states that he does not limit himself

to the forms of cutting, feeding and pasting mechanisms, but on the contrary, that other forms may be adopted, etc.

It is therefore submitted that the claims are not to be limited to an extent that will permit defendants to escape the charge of infringement as urged by petitioners.

Telephone Cases, 126 U. S., 537.
McCormick *v.* Talcott, 20 How., p. 402.
Railway Co. *v.* Sayles, 97 U. S., 554.
Morley Co. *v.* Lancaster, 129 U. S., 273.

Metalic Co. v Brown, 104 Fed. 350-351.

* * *

The only feature that has any semblance to a conflict of opinion between the decisions of the Circuit Court of Appeals of the First Circuit and that of the Second Circuit, as contended by petitioners, is, that in the Second Circuit the Court construed the first three claims broadly, as their language implies, and the Court of the First Circuit adopts the same course in holding that the claims were broad ones, with the qualification that the term "any cutting device," etc., was possibly too broad, yet broad enough to embrace any substitute or equivalent device known at the date of the Beach patent. It is contended, however, on the part of respondent, that the claims should be construed broad enough to cover any feeding, pasting or cutting mechanisms that might be constructed for use in combinations of a character and for the purposes described in the Beach patent, and that such would be embraced by the claims; for example, a feeding mechanism of a character adapted to intermittently advance the ribbon of paper at or to the corners of the box to be cut the proper length, and compressed, even if differing in form, location and mode of its action, if it served as and for the purposes of the devices described by the Beach patent it would be embraced thereby.

Reasons: Were it otherwise, and could a form not

previously known or seen be substituted and used, simply because the particular form thereof was new, yet its operations the same as the one for which the new one was substituted, any mechanic could readily devise a new form and so make it possible for the infringer, by this simple method, to avoid any claim which the law makers never contemplated.

VII.

The Circuit Court of Appeals below did not disregard the facts in the case concerning defendants' feeding mechanism as suggested by petitioners; on the contrary, the opinion of that Court by Judge Colt, at page 483 of the Transcript, clearly indicates that the Court carefully considered the feed in question, as the following quotation from the opinion concerning the feed will show:

"We think that the difference in details are unessential and do not effect the question of mechanical equivalence.

"While we give full weight to the recent decision of the Supreme Court in Westinghouse *v.* Boyden Power Brake Co., 170 U. S., 537, and recognize that it is an abuse of the term 'equivalent' to employ it to cover every combination of devices in a machine which is used to accomplish the same result, we are of the opinion that the feeding mechanism of the defendants, according to the repeated expressions of the Supreme Court left unqualified by the decision in Westinghouse *v.* Boyden Power Brake Co., and recognized in that case by its citation of Imhaeuser *v.* Buerk, 101 U. S., 647, 656, is a mechanical equivalent for the feeding mechanism of the complainant, since it was well known as a proper substitute for the one described in the complainant's specification at the date of his patent."

See also the comments of Judge Colt upon the feed-

ing mechanism, in a portion of the last half of page 482 of the Transcript.

VIII.

The feeding mechanisms of defendants' machine is the feeding mechanism of the prior English patent to M. D. Knowlton of April 5th, 1888, and same as that of the United States application of February 14th, 1888 (p. 249 Trans.). The Knowlton invention is that which was in interference with the application of Beach and priority was declared in favor of the latter. The Knowlton feed is described in defendants' exhibit file wrapper and contents, pp. 253-254 Transcript, and its operations described pp. 257-258 Transcript, and embraced in claims 11-12, p. 262, which were rejected by the Patent Office October 24th, 1888, on a prior patent to Van Geasen of July 3rd, 1877 (page 265 of Trans.). Knowlton made stay machines of the kind set forth in his patent for the market in 1887 (p. 141, 41 x Q., Trans.), consequently the gripper feed was in use long before Horton made his first machine. It should be noted that Horton makes no claim whatever for the feed described in his patent.

IX.

The suggestion on the part of petitioners to the effect that the Horton feeding mechanism is incapable of serving as a substitute for, or, in lieu of the feeding mechanism of the Beach patent is unwarranted, as such a feed has been applied to a Beach machine, and was before the Court below, which operated perfectly.

X.

The first claim of the Beach patent is for an operative combination of factors in an entirely new arrangement,

serving a useful purpose in a mechanical operation never before attained by a machine, therefore patentable.

Mr. Justice Brown in Hancock *v.* Jenks, 21 Fed., p. 915 (a case in point).
Mr. Justice Curtis in Forbush *v.* Cook, 2 Fish, p. 668.
Mr. Justice Bradley in Loom Co. *v.* Higgins, 105 U. S., p. 580.
Halloway *v.* Dow *et als.*, 54 Fed., pp. 516-517.
Bresnahan *v.* Leveller Co., C. C. A. Putnam, C. J., 102 Fed., pp. 900-901.

XI.

The Beach application of June, 1885, contained the elastic feature of the present sixth claim, in combination with the die and plunger, with angular faces. See amendment, claim 4, p. 206 of the Trans.

XII.

Mr. Beach was entitled to the right to amend his application and to draw claims at the close of the interference proceedings, had in the Patent Office, based upon the issues as they were defined from time to time by the Commissioner of Patents, in placing the same in interference with each new contestant under the Office rules in force at the time, to wit, "Interferences "will be declared in the following cases, when all the "parties *claim* substantially the same patentable in-"vention:

(1) "Between two or more original applications."

(2) "Between an original application and an unex-"pired patent, when the applicant, having been rejected "on the patent, shall file an affidavit showing that he

" made the invention before the patentee's application " was filed."

(3) " Between the original application and an ap- " plication for the reissue of a patent granted during " the pendency of such original application."

(4) " Between an original application and a reissue " application, when the original applicant shall file an " affidavit showing that he made the invention before " the patentee's original application was filed."

☞ **The record contains no evidence whatever that Horton drew any claim for the Beach invention** and asserted in or before the Patent Office that he claimed such as his invention ; on the contrary, he avoided such an issue. He made his stay machine with a Beach machine before him. Horton admits having a Beach stay machine at his shop in the early part of 1889 (x Q. 53-54, pp. 31-32, Trans.), and that he subsequently made a stay machine in October, 1889 (x Q. 36, p. 29, Trans.) and filed application for a patent therefor March 28th, 1890 (p. 305 Trans.).

Section 94 of the Patent Office rules in force in 1890 was that " No interference will be declared between " pending applications, nor between a pending applica- " tion and an expired patent, *unless there are conflict- " ing claims.*" Horton's application contained no conflicting claims.

XIII.

The Beach patent is not in anywise affected by foreign patents issued to applicants whose inventions were declared by the United States Patent Office to be subsequent in date to that of Beach.

Kendrick v Emmons, 2 B. & A. 210.
Sect. 4887 Rev. Statute. Patent Office
Rules under,- "Oaths", "Applicants".

G. L. Jaeger and M. D. Knowlton, who applied for and took out English patents, were parties to the interference proceedings in the United States Patent Office and priority of invention was declared in favor of Mr. Beach against both, and the fact that the Jaeger English patent has lapsed cannot possibly affect the rights of Beach under his patent in the United States.

XIV.

The Beach reissue was in accordance with the laws as defined by the Courts. The original patent being found defective and inoperative for the purpose intended, it was the duty of Beach to correct the error and give the public an honest recipe for constructing and operating his new and the first invention in a new art.

Beach discovered that an error had been inadvertently made in the drawing of the patent which, if allowed to remain unchanged, would result in an inoperative machine, consequently render it possible, and in fact probable, that infringers would take advantage of the fact as a defense in the event of a suit brought under it.

A machine, however, constructed in accordance with the defective original patent, would be wholly impracticable, as the box corner to be treated could not be put into position upon the form to receive the necessary stay strip, neither could the stay strip be compressed as required, nor could the corners of the box be shaped and squared as intended by its inventor.

XV.

"Power to surrender patents for the purpose sug-
"gested in the Act of Congress implies that such may
"be corrected to the extent necessary to cure the defects
"and to supply the deficiencies required to render the

"patent operative and valid. * * * The purpose "of a surrender and reissue is not to introduce new "features, ingredients and devices, but to render ef- "fective the actual invention for which the original "patent should have been granted."

Justice Clifford in Collar Co. *v.* Van Dusen, 23 Wall., p. 257.

The law requires of the applicant a careful and correct description of the structure he wishes to patent, such a one that could be clearly understood by those who might desire to construct and practice the invention without being compelled to resort to experiments; consequently a patentee on finding its descriptive parts defective and erroneous in essential features is bound (in justice to the public) to correct the errors by reissue.

And this is precisely what Beach has done, and nothing more. His act in this regard was justifiable and commendable, and the principle sound, and by the act the public is correctly informed, and without interference with the rights of others.

XVI.

The Beach reissued patent presents no claim broader than that which appeared in the file of his application in May, 1886. (See claim, p. 205 Trans.). Furthermore, nothing has been included beyond that clearly indicated in the drawings and set forth in the original specification. (See pp. 200-203-205 of Trans.)

Interference proceedings in the Patent Office suspends all action and amendments on pending applications, until all questions of priority are disposed of, consequently Mr. Beach availed himself of the scope defined and given to his invention by the Commissioner of Patents, and he amended accordingly. Where the drawings and models exhibit matters set out in the amended specifications, it is proper to include them;

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In this instance the public interest is promoted by the change. Justice Bradley in Mahn v Harwood, 112 U. S. 362.

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and the privilege of amending the specifications to this extent continues so long as the application is pending.

Singer *v.* Braunsdorf, 7 Blatch., 521.
See also Godfrey *v.* Eames, 1 Wall., 317.
Suffolk Co. *v.* Hayden, 4 Fisher, 86; 3 Wall., 315.

The combinations specified which compose the first, second, third and sixth claims of the Beach patent are not aggregations, but on the contrary, such as co-act in their new relations in a manner that each factor qualifies the other and together perform results not before attained, said results being due to the joint and co-operative action of all the elements, therefore patentable and valid.

Pickering *v.* McCullough, 104 U. S., p. 318.

XVII.

The claims in the present instance are not to be restricted or limited in their scope narrower than what their language implies and the rules defined by the courts in cases where patents are granted for an original and for the first invention in a wholly new art.

The claims in this case should be given the scope that their language implies. The specification justifies it. Morley Co. *v.* Lancaster, 129 U. S., 273; Rubber Co. *v.* Goodyear, 9 Wall., 773-775; Winans *v.* Densmead, 15 How., 341-342, and cases therein cited. O'Reilly *v.* Morse, 15 How., 123-124.

XVIII.

The first and sixth claims of the Beach patent were made more than a year before the date of any other similar invention, and the second and third claims are more limited in their scope than is the first. As claim

one of May, 1886, was the first broad one, it follows that any that were added at the end and after the close of the five (5) years interference contest in the Patent Office, not broader than the original, was proper, as Beach was powerless to amend during the time that his application was in interference with others.

XIX.

The sixth claim of the patent is for an entirely new invention and combination. The spring, which is a factor in this claim in combination with the others which are new, co-acts with the latter in a manner to permit of the yield necessary to prevent fracture of the die in case an extra thickness of stay-strip is used, or an accidental lapping or doubling of a strip over the corner of the box happens while being operated upon. The Circuit (p. 475 Trans.) as well as the Circuit Court of Appeals (p. 484 Trans.) held that the claim was good and valid.

XX.

The fact that the combinations described in the first, second, third and sixth claims of the Beach patent are new, useful and the embodiment of great utility and value, although apparently simple after Beach disclosed them, have wrought most desirable and beneficial results in the box making business and are therefore patentable. Barbed Wire patent, 143 U. S., p. 283; Gandy *v.* Belting Co., 143 U. S., p. 594; Krementz *v.* Cottle, 148 U. S., p. 560; Potts *v.* Creager, 155 U. S., p. 609; DuBois *v.* Kirk, 158 U. S., p. 63 and others.

XXI.

Although Beach was five (5) years in the Patent Office, he was powerless, under the rules thereof, to

make the desired amendments until after the close of the several interference contests, the scope of which was defined from time to time by the Commissioner, in terms that entitled Beach to adopt them at the close and after final decision on the last appeal.

Patent Office Rules 101-130- "Interferences".

XXII.

Horton did not in any wise claim in his application the combinations of the Beach claims, but on the contrary, narrowed them by self-imposed limitations so as to avoid an interference with Beach; which fact is obvious upon an examination of his patent (p. 305 of Trans.) also his testimony at x Q. 47-48, pp. 30-31 of the Trans.

XXIII.

The claims one, two, three and six of the Beach patent are good and valid in law and are not anticipated by any prior patent or invention, and the first three claims have been upheld by four tribunals in the Patent Office, *i. e.*, Primary Examiner, Examiner of Interferences, Board of Examiners-in-Chief, and the Commissioner in person on appeal; also twice by Judge Coxe in the Circuit Court, Northern District of New York; also twice by Judge Lacombe in the Circuit Court, Southern District of New York; three times by United States Circuit Court of Appeals; twice in the Second Circuit, and once in the First Circuit. The sixth claim by the Circuit Court and also by the Circuit Court of Appeals in the First Circuit.

XXIV.

It was urged in the courts below that the Knowlton patented improvement added value to the Beach pat-

ented invention for staying the corners of boxes, and it was because of this fact that large sales of the Beach machines were effected and secured. Knowlton, however, an experienced and competent witness, swears (Q. 24, p. 140 of Trans.) that there are no differences between his (Knowlton's) machine and that patented by Beach, so far as the essential elements and combinations of the first, second and third claims are concerned. Beach states (x Q. 29, pp. 170-171 Trans.) that all machines known as Knowlton and Beach machines contain the elements and combinations of the Beach reissued patent in suit.

XXV.

Defendant's staying machines are a clear infringement of the first, second, third and sixth claims of the Beach Reissued patent in terms and in fact. Hobbs, one of the defendants here, admits on cross-examination, p. 149 Trans., Q. 18-19-20, the essential factors of the Beach patent, to be those named in the first three claims thereof. It should be noted that Hobbs was familiar with the Beach machines in 1888 (x Q. 53 to 55, p. 152 Trans.) which was long before he bought the Horton (defendants') patent. Brevoort (Q. 6, p. 192 of Trans.) says defendants infringe the first, second, third and sixth claims of the patent to Beach; see also Brevoort statement, pp. 186-187 Trans., wherein he concludes with the following:

☞ "The entire, art as exhibited in this case, goes "to show that the Beach invention was not an obvious "one, but was one that mechanics in the box art never "thought of, and Beach was the first man who taught "box makers mechanical means for applying stay-strips "to the corners of square boxes. There can be no dis- "pute that the invention is a valuable one, and a highly "useful one; and the art clearly shows that it was not "an obvious one."

Fowler, defendants' expert, admits in his deposition on cross-examination, pp. 72 to 76 of Trans., that he finds no machine or patent containing the combination of the first, second, third and sixth claims of the Beach Reissued Patent, of a date prior to the latter.

XXVI.

The patented invention is not anticipated by any mechanism whatever, that is capable of performing the work of applying short reinforce stay-strips of paper or other fibrous materials upon the corners of paper boxes formed by the union of the sides to hold and rigidly unite them at and about their apex.

The nearest approximation being the apparatus patented by Dennis & Yorks for sticking labels, which was presented before the New York and Massachusetts Courts, and was elaborately discussed there.

(See opinions of Judge Coxe, p. 286 of the Trans.; Judge Lacombe, p. 296 of Trans.; Judge Colt, p. 478 of Trans.)

It could not possibly serve the purpose of the Beach invention, neither does it present or suggest to the mind of any one, the combinations of the Beach claims. Brevort says at page 189 of the Trans.:

"The point is that these labelling machines although "they are apparently similar to the Beach invention, "existed as the patents show, for many years before "the date of the Beach invention, and as a matter of fact "the Zacharias patents date back to 1867, and no one "was instructed by any one of these patents how to "produce a machine for staying a box corner; and I "do not think that a person to-day can contend that the "Beach invention is met by a series of old patents de-"scribing mechanisms which were intended for doing "the work in a different way, and which are not in

" their present form adapted for doing the work for
" which the Beach invention is intended, and which,
" even if altered as suggested by Mr. Fowler, would
" not satisfactorily perform the work of the Beach ma-
" chine, or could ever be substituted in actual manu-
" facture for that machine."

Also at page 190 Brevort says:

" Of course, after an inventor has made an invention
" it is easy enough for every mechanic to see how he
" could have taken some old mechanism in the art, which
" had no relation to the invention under consideration,
" and by taking also some other old mechanism in the
" art he could have put these two things together and
" made the valuable invention which is in controversy.

" Practically, in every patent suit this is one of the
" defenses relied upon, and often it is correct; but I
" do not think that in this case the contention can be
" successfully made, because the mechanism of the lab-
" eling and stamping art were not in themselves of such
" a nature as would have indicated to a mechanic ex-
" amining them their adaptability for the box-stay-strip
" art; and that this is so, is proved by the fact that
" they existed almost twenty years before the date of
" the Beach invention, and no one thought that by so
" altering them a box-stay-strip machine could be made
" from them; and no one thought, nor dreamed, of do-
" ing such a thing until these old patents were raked up
" after Mr. Beach's invention had been made, and its
" value found out. Then the statement is made that
" they taught, in view of the state of the art, all that
" Beach taught. I say they did not. If they were
" evidently suitable for doing that which Beach de-
" scribed in his patent, then why was it that they were
" not utilized for that purpose?"

Fowler, defendants' expert, admits in his testimony, that he found nothing in the prior art that contained the combination of claims 1, 2, 3 and 6.

XXVII.

"Beach was in fact the first person to contrive and produce a machine for the work of applying stay-strips of paper and other fibrous materials to and upon the corners of paper boxes consisting of the new employment of principles or powers in a new mode of operation, embodied in a form by means of which a new result is produced, therefore, a pioneer and the first in a new art created by himself, consequently entitled to a broad scope for his claims. Morse Telegraph Co. suit, 15 How., 62; Whip Co. *v.* Lombard (Dist. of Mass.), 3 B. & A., 598; Machine Co. *v.* Murphy, 97 U. S., 123; Machine Co. *v.* Lancaster, 129 U. S., p. 273; Register Co. *v.* Cash Register Co., C. C. A., 53 Fed., p. 372; Winans *v.* Denmead, 15 How., p. 343.

Defendants in this suit have undertaken to show that it did not require invention to produce the corner Stay Machine patented by Mr. Beach, and to sustain their position, have put in evidence over 30 patents. Mr. Fowler, their expert, has referred to many of them without finding in any one of them the combinations set forth in the 1st, 2nd, 3d and 6th claims of complainant's patent. (Defendants in the New York cases set up as anticipation 50 American, 4 English and 2 German patents.)

All but 10 of the patent exhibits in this case were presented before and considered by the Courts in all of the New York cases; the 10 patents *not* before the Courts in New York were the "Kingsbury" patent for a pasting machine, the "Inman" patent for labeling boxes, "Beecher & Elliott" patent for stamping match boxes, "Gates" patent for box forming and retaining machines, "Smith" patent for forming boot heels, "Bigelow" patent for forming boot heels, "Wilson & Miller" patent for cupping and cutting sheet metal, "Hiliare" patent for shaping heels, "Hatch Patent, Heel Stiffener," "Brew-

er" patent book stitching machine, and not one of these 10 patented machines contain the combination of either one of the claims in suit, and not one of them are nearer the claims of the Beach patent than was the Dennis & Yorke machine, about which **Judge Coxe,** in his opinion, said:

"It is not necessary to examine the other patents introduced by the defendants. If the Dennis and "Yorke patent does not invalidate the Beach patent "none of the others does. The Orr and Wright patents, "Nos. 58,466 and 67,669, and the Munroe patents, "Nos. 244,919 and 298,879, relate to the covering of "boxes by winding paper around them. There is "nothing in the machines described and shown to "suggest the Beach machine. The other patents are "still further remote," and **Judge Lacombe** in speaking for the Circuit Court of Appeals said:

"If this Dennis & Yorke machine were already in "the boxmakers' art; if some one prior to Beach had "cut away part of its framework, had made its flat "platen rigid and increased its power and employed it "to affix adhesive labels to the tops or sides of boxes, "it might not be invention merely to change the "shape of the dies so as to fit into and over box-corners and there apply adhesive strips. But no one "had done this; the Dennis & Yorke machine was "not in this prior art, and when Beach took it from "another art, where it was doing different work, and "by modification adapted it to efficient use in his own "art, and thereby gave to his own art the first machine "it ever had which could do work necessary to be "done, and always theretofore done by hand, he made "an invention to the fruits of which he should be entitled."

Judge Colt in speaking in this case for the Court of Appeals (481 Trans.) said, concerning the patent exhibits presented as defenses, that several had been offered here that were not before the New York

Courts, "but it is apparent on inspection that they are "much more remote from the Beach invention than some "of the patents which were before the Courts in the "New York cases and which were commented upon in "their opinions."

Mr. Brevoort, after considering all of the several exhibits put in evidence by defendants, and the testimony of Mr. Fowler based thereon, testifies at p. 192 of the Trans.:

Int. 6. Do you agree with Mr. Fowler in his answer to the eighth interrogatory in his second deposition (pp. 184, 185) that the patent in suit must be limited to the exact mechanism shown, and cannot, therefore, include the defendants' machine?

Ans. I do not agree with Mr. Fowler in this regard; and I clearly agree with the proposition that the defendants' machine is embraced within the terms of the claims here in controversy, namely, the first, second, third and sixth. I do not think that the state of the art either limits the Beach patent so that it cannot cover the defendants' machine, nor do I think that it leaves the Beach patent void for want of invention, as Mr. Fowler suggests.

See also *the full reasoning and explanation* of Mr. Brevoort concerning the alleged anticipating patented inventions set up by defendants (pp. 89 to 92 inclusive).

The fact that no machine existed prior to the date of the Beach invention that was capable of feeding, pasting, severing from a roll or continuous strip and compress the strip upon the corner of the box and shape the corner properly, as the Beach machine does, is certainly good evidence that the "art," as mechanical operation and result, was, and is, in fact, new to the box making business.

ARGUMENT.

The evidence on the part of defendants is wholly insufficient to show or prove that it did not require invention to formulate, arrange, combine and adapt the factors and combinations described in the first three and the sixth claim of the Beach patent.

On the contrary, the granting of the patent, the several interferences with similar applications in the Patent Office, upon mechanism with differing forms of parts, the long contests, and the mass of evidence taken therein, and the fact that hearing after hearing was had, and the intervals of time intervening, afforded the contestants, as well as the commissioner and his staff, the opportunity to raise the question and declare that the supposed invention by Beach was old, or, that the existing art did not justify the claims sought, and so order the interference dissolved. *It was the right and duty of the opponents of Beach; it was the duty of the commissioner, and that of his staff having jurisdiction*, and they had the right, at any time before delivery of the patent, to withhold the same from issue in case the above facts referred to appeared, or were brought to their notice. It is safe to conclude that the suggested points did not appear to any of them, and therefore the patent was issued accordingly.

The importance of the invention can be appreciated to some extent from the fact that no less than five applicants were before the Patent Office at the same time for patents for the same invention, and can be more fully realized upon noting the testimony of twelve witnesses who have given their evidence in the case, as to its great value and importance to the paper box making trade.

The decisions of Judge Coxe and that of the

United States Circuit Court of Appeals, and the more recent ones based upon the Beach patent in the New York courts, are such as to support the contentions for Mr. Beach, and justify a decree in accordance with the prayer of the bill.

Mr. Fowler, defendants' expert witness, admits that no one of the exhibits offered by them as defenses contains the combinations called for by the claims of this suit. Mr. Fowler says, however, that he finds parts in different old machines, but in no one of them is found the combinations specified in the claims. The proposition, however, of taking parts from one machine, and other parts from another, of a different class and for a different purpose (*as might be suggested to the mind of another after seeing the perfected invention of Beach*), *is not sound in principle, nor in accord with the decision of the courts*, particularly in view of the fact that the box manufacturers for all time, prior to the Beach invention, had to apply and secure the short stay strips to the corners of boxes by the slow, tedious and uncertain hand process, as no other means had been previously discovered. *Of course, after Mr. Beach had perfected the machine and the method for applying and securing such stay strips automatically, and had enlightened the public as to the advantages, importance and value of such, it was then, and not until then, that the infringers were ready to say that it did not require invention to organize and construct the machine patented by Beach.* It will be contended on the part of the complainant (respondent here), and submitted for the consideration of this Court, that had the invention patented by Beach been withheld from the public, it is reasonable to assume that the paper box making public would still be engaged in the staying and reinforcing of the corners of paper boxes with the strips of paper and muslin by the old, crude, inartistic and unsatisfactory hand method, as suggested by Judge Coxe in his opinion. It is very evident, however, that a great need for something adapted to properly stay the corners of boxes mechanically with

short strips of paper or muslin was needed, concerning this fact there is much testimony in support of it, and that such needs had occupied the minds and attention of different ones in different parts of the United States, for, as before stated, it appears by the evidence in this case, that very shortly after Beach had made his application for a patent, others followed and filed applications, and while the same were pending, they brought about a series of interferences, resulting in contests, to ascertain which of the several contestants was the first inventor of the staying apparatus, and these contests resulted in a decision in each instance in favor of Mr. Beach (complainant in this case), and all of the several applications and inventions contained the essential elements, factors and combinations of the Beach invention, although of varying forms of parts, thus showing the fact, that *all* recognized the importance and advantages of the combinations first improvised, described and afterwards patented by Mr. Beach.

Furthermore, while the applications were pending in the Patent Office, the Examiners, and others in charge of such applications, with their long experience and knowledge in similar arts, particularly in those pertaining to paper box making, failed to discover the existence of anything that anticipated the claims of Beach. The patent to Cohn, however, was cited against claim "one" of the original application, because said claim was broadly for angular dies in a machine without a pasting mechanism, which claim (clearly too broad) was immediately amended and limited in accordance with the facts and suggestions of the examiner in charge of the case at the Patent Office, and the fact that the application was long pending, in fact, nearly five years before different tribunals in the Patent Office, and nothing found to anticipate the claims granted, is an additional fact which tends to show very clearly that Mr. Beach was the first man to produce an apparatus for automatically presenting and applying short stay strips of paper or muslin to the corners of boxes; and when we

consider that the fact has been acknowledged by witnesses produced by the defendants, as well as those of the complainant, it is contended that Mr. Beach should have that full benefit and protection which the Federal laws intended to be applied in such cases to the meritorious inventor, *and especially to a pioneer in the art of doing work by machine which had always before been done by hand.*

Decisions of the Courts in cases of this kind in support of complainant's (respondent's) position, are numerous and to the point: For instance, the Court in the case of Troy Co. *v.* Sharp, *et als.*, reported in 54 Fed. Rep., p. 712, the Court in its opinion remarked that "All the elements of the combination were old save one—the dampening rollers "covered with a thin textile fabric. The Beach patent, "No. 18,032, is, it is thought, the best reference offered by the defendants. It shows rollers arranged "in similar juxtaposition to the rollers of the patent "in hand, but the Beach mechanism is designed to "dampen and cut paper. It would be wholly useless "as a machine for dampening collars and cuffs, for the "reason, principally, that its rollers are covered with "cloth, and not by the thin textile fabric of the patent. "It was the adoption of this thin fabric which made success out of failure. * * * The patentees having "made a meritorious invention, the Court should seek "to uphold their patent and not to destroy it by illiberal construction. * * *

"*The equities are with the patentees. They have "constructed a valuable and successful machine which "performs the work required in a satisfactory manner. "They were the first to make a success in this particular "branch of industry. The defendants have copied all "the essential features of the machine, and no reason is "suggested which entitles them to a harsh and narrow "construction.*" (See also decisions of the Supreme

Court in Telegraph Cases, Telephone Cases, McCormack *v.* Talcott, *supra.*)

In light of the fact that Fred H. Beach was the very first to construct a machine adapted to automatically apply and secure short stay strips of paper or muslin to the corners of a box, the rule of the Court adopted in the Troy case should be applied to the one at bar. *No anticipating machine has been produced in evidence on the part of the defendants capable of applying and securing such strips to the corners of a box,* and when we consider the testimony of the large number of well known and extensive manufacturers, and of what they say concerning the importance and value of the staying machine to the trade, and when we consider also that there is no evidence to the contrary, *the importance and value of the machine must stand as a conceded fact,* and whether the amount of invention appears great or small, Fred H. Beach was the first to produce the very useful machine, since looked upon and considered as an indispensable requisite in the factories where general paper box making business has been carried on.

Concerning the question of Reissue which has been already briefly alluded to, it is contended that Beach was in duty bound to correct the errors of the draughtsman, who inadvertently made the drawings so defective, that to follow them would be the production of a machine that would be entirely inoperative for the purposes intended by the inventor; therefore, Mr. Beach availed himself of those rules of law which permitted him to make the necessary corrections, "and to render effective the actual invention for which the original patent should have been granted," as suggested by Mr. Justice Clifford in Collar Co. *v.* Van Dusen (23 Wall., pp. 557-558).

It is therefore contended for reasonable that the Commissioner of Patents did not exceed his authority in permitting the reissue in view of the facts stated, and the rule suggested by Mr. Justice Clifford in the Collar case

(*supra*, p. 558), where he says: "Unless, however, it "is apparent upon the face of the new patent that the "Commissioner exceeded his authority, his decision is "final and conclusive, as the jurisdiction to reissue is "vested in him, etc." The same rule was announced by Mr. Justice Brown in Topliff *v.* Topliff, 45 U. S., p. 171.

Concerning the right of Beach to amend his application after the several contests in the Patent Office upon the questions of priority of invention, he did nothing except in accordance with the law, and rules of the Patent Office. (Sect.

Deering v Harvester Co. 155 U.S. 296.
Topliff v Topliff, 145 U.S. 156.

The division of an invention into combinations and sub-combinations that are new and useful are proper, and each may be set out in the claims of the patent. Bresnahan *v.* Leveller Co., C. C. A., 102 Fed., p. 900, opinion by Judge Putnam; and the contentions of petitioners are without sufficient support that claims 1 and 2 of the Beach patent are not patentable, because a certain element does not appear in one that appears in another. None of the several machines and patented apparatuses presented on the part of the petitioners (defendants) as anticipatory contain the combination of any one of the several claims in suit, therefore do not anticipate—no one of the several exhibits present an apparatus capable of performing the work of applying the short stay-strip of paper, etc., to the corners of paper boxes, and not one of them but what would require an extra modification and reconstruction to an extent beyond that expected from an ordinary skilled mechanic.

☞ Consequently, the difference between the patented machine of Beach and the alleged anticipations, is that of a successful, valuable mechanism for a very

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☞ Consequently, the difference between the patented machine of Beach and the alleged anticipations, is that of a successful, valuable mechanism for a very

desirable and important use, and an apparatus that is absolutely worthless for the use and purpose of the former. *The one is a boon and benefit to mankind; the other useless and of no value in the art.*

The words "substantially as described" whether added to the word "mechanism" or otherwise, does not limit the Beach claims as contended by petitioners. The rules laid down by this and other courts are counter to their contention.

Waterbury *v.* Miller, 9 Blatch., 92-97, is instructive.

Clough *v.* Barker, 106 U. S., 171.

Cash Register Co. *v.* Register Co., 3 C. C. A., 559, in point.

Wheeler *v.* Reaper Co., 10 Blatch., 181.

The case of Cash Register Co. *v.* Cash Register Co., *supra*, is directly in point here and substantially a parallel case with the one at bar, particularly so far as they relate to a combination of old elements for a new purpose or use—a pioneer invention, and whose claims contain the words "substantially as described."

The patent was broadly sustained.

In Wheeler *v.* Reaper Co., *supra*, defendants contended that because the claim of the patent contained the words "substantially in the manner described," they did not infringe because they did not use the shoe as described in the patent. The Court (p. 193) said:

"It is, certainly, true, that the circular or curved "plate used by defendants in the clipper, to cause the "fingerbar to oscillate, is, in appearance and form, very "unlike the hinged arched bar, *h*, which is used for the "same purpose in complainant's machine; and it is, also, "true that the hinged arched bar performs, in the latter "machine, an office of which the clipper's curved plate is "incapable, namely the office of bracing or strengthen-

" ing the vibrating frame to which, on each side, it is " attached * * * the two perform precisely the " same functions, and all the functions of complainant's " hinged bar. * * * If, then, the curved plate in " the clipper performs the same office in the oscillation of " the cutter-bar, and in substantially the same way, then " the defendant uses the mere equivalent of the com- " plainant's hinged bar. * * * Defendant also " urged that the oscillation in the two machines causes " the two fingerbars to turn in different lines, as centers " of oscillation."

The Court said:

" No doubt there is a difference in that respect. But, " it would be trifling with the subject, and making the " rights of a patentee in general valueless, to hold that " this deviation protected an infringer."

☞ It should be remembered that Beach, the patentee, gave full notice in his patent (see page 242, Trans.) that he did not limit himself to the form of feeding and pasting mechanisms therein shown and described, but that other forms might be employed for the purposes set forth. Beach has not, therefore, limited himself to the exact mechanism shown and described in his patent for feeding, cutting and pasting, etc.

The opinion and decision of the Circuit Court by Judge Coxe in the case of Beach v. American Box Machine Co., et als., reported in 63 Fed. Rep., p. 497, sustaining all of the claims sued upon, and the opinion of the Circuit Court of Appeals of the Second Circuit (18 C. C. A., p. 165), fully affirming the decision of the Circuit Court, and the more recent decision of Judge Coxe in the case of Beach *v.* Inman Mfg. Co. involving claims 1, 2 and 3 of the Beach patent, No. 11,167, and that of the Circuit Court

of Appeals in the First Circuit (p. 478, Trans.), are it is submitted, such as to justify an affirmance by this Court.

Briefly stated the evidence shows that:

(1) The Beach patented invention is not anticipated by prior machines and was so decided by all the Courts and Patent Office.

(2) That Beach was the pioneer in the art, which fact is shown by the evidence of the leading box manufacturers of the country, who testified for complainant. (See pp. 79 to 137 of Trans.)

(3) That there were no irregularities in the granting of the patent was the decision of every tribunal in the Patent Office, Circuit Court and Circuit Court of Appeals in the First and Second Circuits.

(4) That the patented invention of Beach is of great importance and value. See evidence of at least twelve (12) witnesses representing as many leading manufacturing establishments of the country (pp. 79 to 137 of Trans.)

(5) That defendants have infringed the first, second, third and sixth claims of the patent (C. C. A., p. 478 Trans.

(6) The infringing machine of defendants is the same as the machine of the first, second, third and sixth claims of the Beach patent. (See opinion C. C. A., p. 478 Trans.)

(7) That defendants' machine contains the same factors in substance, operates the same, and performs the same functions, and therefore is the same as the machine of the Beach patent. Evidence of Brevoort, Knowlton and others (see Trans.).

(8) The defendants' machine produces the same result as that of the patent. (Deposition of Brevoort, Knowlton and others.)

(9) The feeding device of defendants' machine is the equivalent of the feed of the Beach patent. (Brevoort ev., x Q. 15, p. 198 Trans.), also Van Geasen patent of July 3rd, 1877, cited against the application of M. D. Knowlton before the date of the application of Horton.

(10) That the Beach patent has been repeatedly sustained by the Courts below, and three times by the Circuit Court of Appeals without a dissent.

(11) The years of contest and interference proceedings before the Patent Office is *prima facie* evidence of a careful consideration of the application before the grant and issue of the patent.

(12) The reissue was granted strictly in accordance with the law and the decisions of the Courts, and it was so held in the New York and Boston suits without dissent.

(13) The first, second and third claims are each new and useful combinations and have been so held by every tribunal below, that is to say, four in the Patent Office, five times in the Circuit Courts, and three times in the Circuit Court of Appeals.

(14) The sixth claim is for an entirely new and useful combination, and as such is patentable.

(15) The evidence shows that Horton did not make any claim whatever broad enough to embrace any one of the claims of the Beach application which had been pending for years before the Patent Office in interference with other and older applications.

(16) That the gripper feeding device is in substance

and effect the feeding mechanism of the Beach patent although of different form, yet in purpose and effect precisely the same. In operation both are intermittent, both impinge the strip of paper and move it along the required distance to be cut and compressed upon the box corners.

The patent to Mr. Beach is an extremely important one, and of inestimable value to the paper box making trade, and the evidence herein is abundant to show that no box making concern without a corner staying machine could compete with another concern having such. The patent is for a combination of elemental instruments so constructed and arranged as to form an organized mechanism or apparatus for performing in a better, more substantial, lasting, uniform and rapid manner that kind of work which for the past century has been done by the uncertain hand method only, and no organized machine existed prior to the invention of Beach that could possibly do the work for which his patented apparatus was adapted, and no machine existed at the date of the Beach invention that could possibly be adapted to do the work of the latter without entire reorganization. ☞ IT WAS THIS UNION OF ELEMENTAL INSTRUMENTALITIES, CONSTRUCTED AND COMBINED IN THE MANNER SET FORTH IN THE PATENT THAT GAVE IMPORTANCE AND VALUE TO THE MACHINE AND CAUSED ITS ADOPTION IN EVERY PART OF THIS COUNTRY AND GREAT BRITAIN. Yet, by the statements made on the part of defendants, they would have the Court impose limitations and rules inconsistent with the facts, laws and well settled rules governing such cases. They suggest that by limitations, which should be imposed, the first three and the sixth claims should be held void as lacking in patentable novelty, and at most should be limited to the specific form and arrangement of parts shown in the patent, although nothing anticipating the

claims is shown by the evidence:—To such notion, the language of Mr. Justice Matthews (Reed *v.* Chase, 25 F. R., 100) is in point, where he said: "But this mode of interpreting the "patent, and the conclusions resulting from it, are not "admissible. It rejects altogether, as inconsistent "with it, the well-established rule of construing pat-"ents in the light of the existing state of the art so as, "by separating things which, although parts of the de-"scription, were well known and in common use, to "eliminate the precise invention which it must be pre-"sumed the patentee intended to claim as his own, un-"less the claim itself is so express and unambiguous "as not to admit their exclusion; and also the equally "well-recognized rule that a patent, even though it "claims a device by a particular description, must be "held also to include everything which is a mere equiv-"alent for it, not itself involving invention. Without "the aid of these reasonable and beneficial rules of con-"struction few patents would be of any practical value."

The language of the Court in Troy Co. *v.* Sharp (54 F. R., 713), *supra*, is in the same strain as that of Justice Matthews, and winds up by saying: "The "equities are with the patentees." And it further said: "They have constructed a valuable and successful ma-"chine which performs the work required in a satis-"factory matter. They were the first to make a success "in this particular branch of industry. The defend-"ants have copied all the essential features of the ma-"chine, and no reason is suggested which entitles them "to a harsh and narrow construction."

In the case of Dugan *v.* Gregg, 48 F. R., 229, Judge Coxe, in his decision in that suit, used the following: "To construe the claim thus narrowly is to put a pre-"mium upon infringement and render the patent "valueless."

These authoritative decisions which have never been modified or disturbed, furnish the rule by which this case is to be decided. If the combinations set forth in

the first three and the sixth claims, did not exist prior to the Beach invention and patent, the latter is valid.

The question raised by defendants that the so-called Knowlton and Beach machine because of additions (which are unessential) is not the machine of the patent, is wholly untenable; for as before stated, and as the evidence shows, the so-called Knowlton and Beach machine certainly could not be made and sold except by and with the consent of the owner of the Beach patent, and even if they contained an improvement, whether by Mr. Knowlton or otherwise, it would be subject to the claims of Beach. The language of the Circuit Court of Appeals (in Woodward *v.* Last Machine Co., 60 F. R., 285), by Judge Colt, applies to the proposition, where he, in speaking for the Court, says: "It may be that these * * * machines are "an improvement upon the invention covered by "the * * * patent in suit, but they still have all "the essential elements of the best form of that (pat-"ent) invention, and therefore must be held to in-"fringe it."

It is therefore respectfully submitted, that the decision of the Circuit Court of Appeals should be affirmed.

JOHN DANE, Jr.,
for the Respondent.

2 Sheets—Sheet 1.

H. VAN GEASEN.

MACHINE FOR MAKING WIRED-TICKETS.

No. 192,798. Patented July 3, 1877.

Fig. 1.

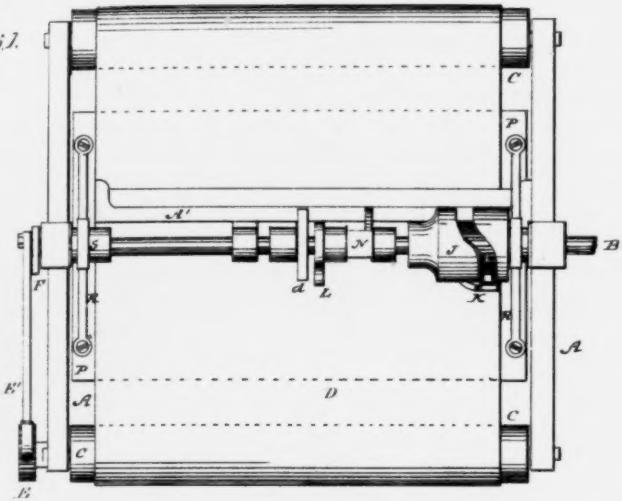
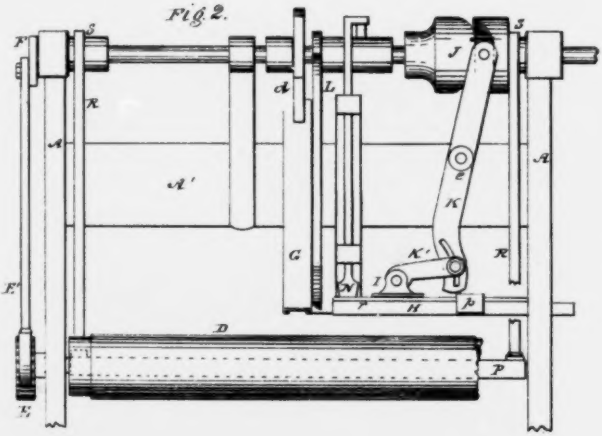


Fig. 2.



Witnesses:

Emanuel V. Baldwin

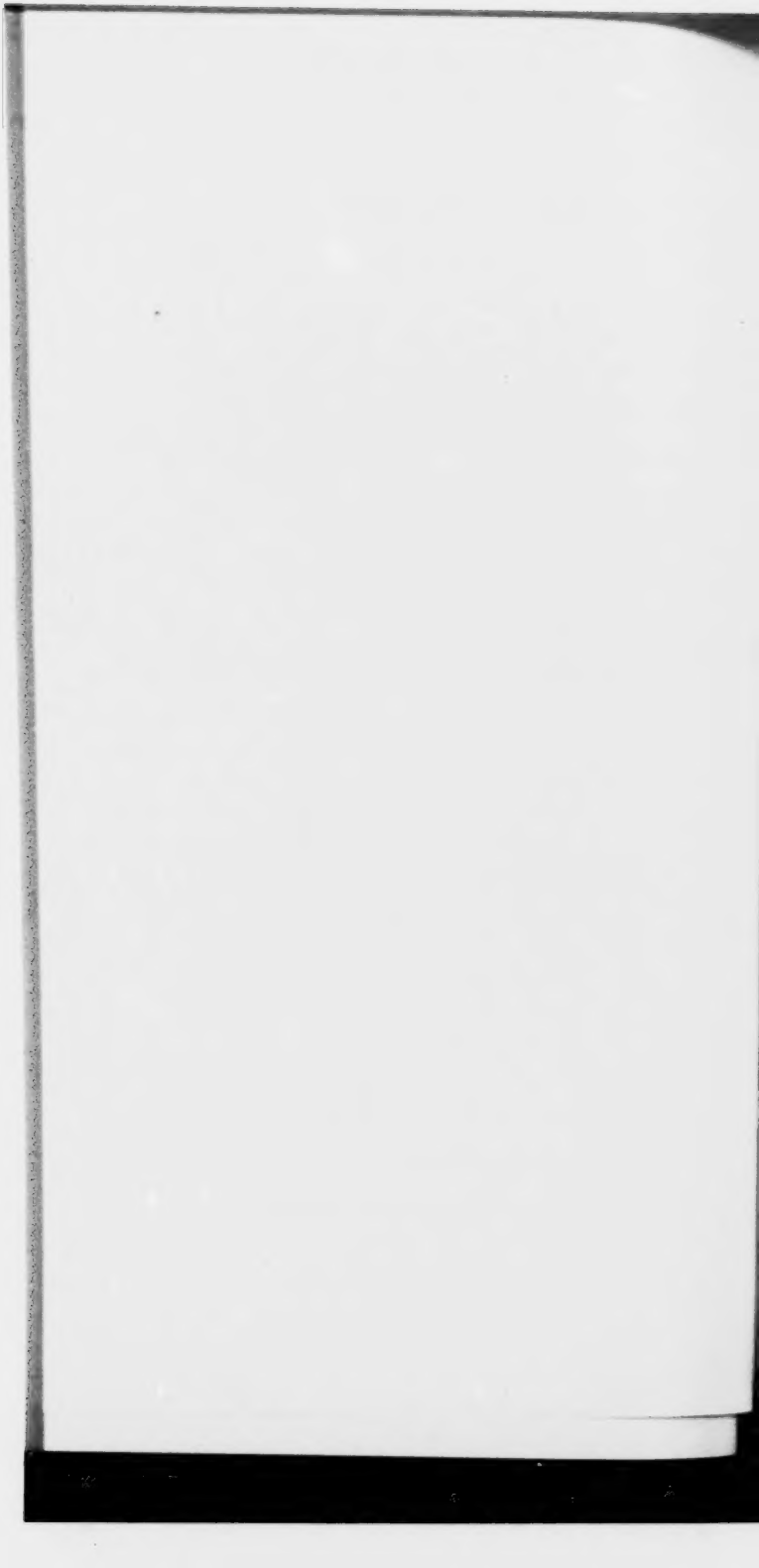
John McGavin

Inventor:

Halmeagh Van Geasen

By his Atty

John B. Thornton



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H. VAN GEASEN.

MACHINE FOR MAKING WIRED-TICKETS.

No. 192,798. Patented July 3, 1877.

Fig 3

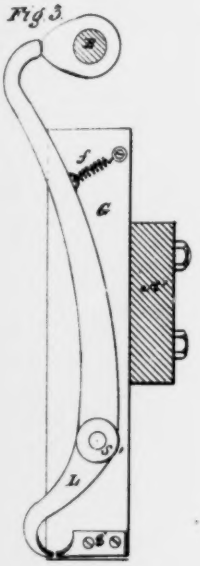

Fig 4.

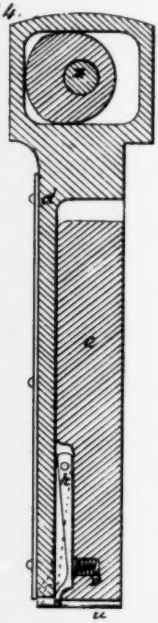

Fig 5

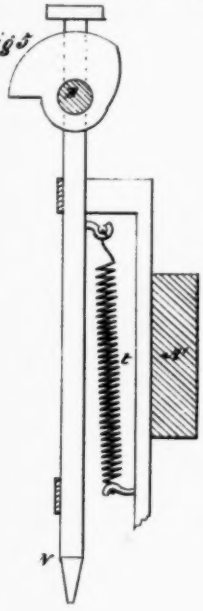

Fig. 6

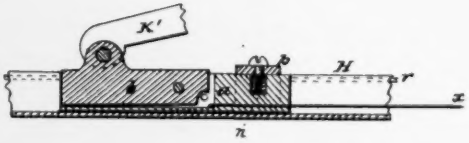

Fig. 7

Fig. 8.

Witnesses:
Emanuel H. Baldwin
John M. Carrier

Inventor:
Halmeagh Van Geasen.
By his atty
John S. Thornton

UNITED STATES PATENT OFFICE.

Halmeagh Van Geaseon, of Paterson, New Jersey.

IMPROVEMENT IN MACHINES FOR MAKING WIRED TICKETS.

Specification forming part of Letters Patent No. 192,798, dated July 3, 1877; application filed March 21, 1877.

To all whom it may concern:

Be it known that I, HALMEAGH VAN GEASEN, of the city of Paterson, in the county of Passaic and State of New Jersey, have invented an Improved Machine for Making Wired Tickets; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification.

The object of this invention is to construct a machine for manufacturing in a rapid and economical manner a certain "size and quality ticket" for which Letters Patent were granted to me on the 21st day of April, 1874.

My invention consists in certain novel and peculiar devices for feeding in the wire, for forming the wire fasteners, and for inserting the same in the card-board; and in the combinations and arrangements of the said devices with each other, in such a manner that the wire fasteners may be formed and inserted in the card-board automatically, and with rapidity and precision.

In the accompanying drawing, Figure 1 represents a plan view of my improved machine. Fig. 2 is a front elevation of the same; and Figs. 3, 4, 5, 6, 7, and 8 are detail views hereinafter referred to and particularly described.

A represents a portion of the frame of the machine, which may be of any suitable form and dimensions for

holding the working parts. B is a shaft, having bearings in the upper part of the said frame, to which the power is applied for driving the machine. C C are cylindrical rollers, having bearings in the lower part of the said frame, over which is stretched an endless web, D, upon which the card-board or paper from which the tickets are made is laid.

An intermittent motion is imparted to the web D by means of a rachet, E, secured to one of the said rollers C, which said ratchet is driven by a pawl, E′, operated by an eccentric, or cam, or crank, F, on the end of the shaft B, by which means the said web D is moved, at each revolution of the shaft, a distance equal to the length or size of each of the tickets which are being made. By this movement the said web carries the said sheet of paper or card-board under the wire-forming device G, which latter is hereinafter described.

I represents my improved wire-feeding device or shuttle, for feeding the wire from a continuous roll to the forming device G. It consists of a rectangular piece of metal, *a*, which is slotted to receive a tongue, *b*, that is pivoted therein, as shown in Fig. 6, which represents a longitudinal vertical section of the same. This shuttle travels in a box, H, which is secured to the frame A in any suitable manner in a horizontal position, about one inch above the upper surface of the web D.

A reciprocating movement is imparted to this shuttle by the levers K and K′, to the latter of which it is pivoted, and which are operated by a grooved cam, J, fixed on the shaft B, so that the said shuttle has a movement back and forth equal to the length of wire required to form one of the wire fasteners.

The lever K is attached, by the pivot-pin *e*, to the cross-bar A′, and the lower end thereof is slotted, for the purpose of adjusting the length of the stroke of the shuttle. The solid portion of the shuttle is perforated longitudinally to admit the wire, which latter passes through the same and between the under surface of the tongue *b* and the bottom of the slot, and the

tongue *b* being pivoted near its rear end, the forward end of the same is, by the action of the lever K′, pressed firmly down upon the wire on the forward stroke of the shuttle, and slightly raised as the latter is drawn back.

A sufficient degree of friction is imparted to the shuttle by means of a suitable spring, *n*, that presses against the under side of the plate or bar *p*, which latter is attached to the shuttle, and travels on the guides, *r*, provided on the sides of the box H.

L is a knife for cutting the wire into the proper lengths, which is located between the shuttle or feeding device last described and the forming device G, and which is most plainly shown in Fig. 3, which represents a side elevation of the same. The cutting-edge of this knife is at its lower end, and the body of the knife is pivoted to G, as shown at *s*′. It is operated by a cam on the shaft B, its upper end being kept in contact therewith by a suitable spring, *f*. The cutting-edge of the knife works in connection with a stationary knife, *g*, so as to give a slanting cut, and thus form a sharp point on each part of the wire thus cut.

N is a presser-foot, which is actuated by a suitable spring, *t*, and lifted by a cam on the shaft B, and is for the purpose of holding the wire at the bottom of the box H, and preventing its being drawn back by the shuttle on its backward movement.

In Fig. 5 is shown a side elevation of this device.

The forming device G, a vertical section of which is shown in Fig. 4, consists of a metal box, *c*, (which is secured to the cross-bar A′,) in which works a plunger, *d*, actuated by a cam on the shaft B, and having a vertical movement, and a lever or tongue, *h*, which is pivoted within the portion *c*, and is moved in one direction by the plunger *d*, and in the opposite direction by a spiral or other suitable spring, *v*. At the rear side of the extreme lower end of the tongue *h* a groove is cut, into which the wire is received when the said tongue is driven

inward by the descent of the plunger, which said groove extends across both sides of the tongue, to receive the shanks of the wire when thus drawn inward, by which means the wire is brought into the form shown in Fig. 7, and on the under side of the metal box *c* is secured a slotted plate, *u*, upon which the wire lies, with its shanks or ends projecting from the front of the box. By the completion of the stroke of the plunger these projecting ends are forced downward, and thereby brought into the form shown in Fig. 8, and are held in this position within the box until, by the ascent of the plunger, the spring *r* comes into play, and throws outward the lower end of the tongue *h*.

P is a table (shown in Figs. 1 and 2) suspended below the upper sheet of the web D by straps or stirrups R R, operated by cams S S on the shaft B, which are arranged so as to raise the said table and the upper sheet of the web, while the wire fastener is still held at the foot of the box *c*, with its sharp ends directed downward, as above described, by which means the latter are caused to penetrate the paper or card-board on the web.

The operation is as follows: The wire (marked *x*) is fed from a coil through the wire-feeder I, each revolution of the shaft B giving one forward and backward movement to the same, and during the forward movement of the same the wire is held firmly by the tongue *b*. On reaching the end of the forward stroke the presser-foot N descends, and holds the wire until the shuttle has completed its backward stroke. The wire is then cut by the knife L, and that portion of the same which is within the forming device G is first bent into the form shown in Fig. 7, by reason of the plunger *d*, in its descent, forcing the tongue inward, and by the completion of the stroke of the said plunger is bent into the form shown in Fig. 8, with its points directed downward, and is held in this position while the table P is raised by the action of the stirrups R R and cams

S S, so as to bring the sheet of paper or card-board, as it lies on the web D, in contact with the under side of G, by which means the points of the wire are inserted through the paper. These several movements are repeated for each wire formed and inserted, and between each repetition of the same the web D, carrying the sheet of paper or card-board, is moved the distance of the length of a ticket by the ratchet E.

The card-board or paper is generally placed on the web in sheets containing ten tickets one way and fourteen the other, (or any other convenient size,) and the wires are inserted, as above described, in rows at equal intervals. And I may mention that the card-board of paper is generally laid upon a thin block of cork or similar material, which the points of the wires will readily penetrate while it is being passed through the machine.

What I claim as my invention is—

1. The wire-feeding device I, composed of the following parts: the shuttle or piece *a*, perforated longitudinally to admit the wire, and slotted to receive the tongue *b*, which is pivoted near the rear end thereof, the box H and the spring *n* and plate *p*, or other suitable friction device, in combination with the cam J and levers K K′, substantially as shown and described, for the purposes specified.

2. The wire forming device G, composed of the slotted metal box *c*, the tongue *h*, the slotted plate *u*, and the plunger *d*, constructed and arranged substantially as herein described, for the purposes specified.

3. In combination with the wire-forming device G, constructed as described, the endless web D, suspended table P, and the cams S S, arranged in relation to each other substantially as shown and described, to operate as set forth.

4. The combination of the feeding device I, forming device G, knives L and *g*, presser-foot N, suspended table P, and endless web D, arranged relatively with each other and with the several cams on the driving-

shaft, substantially as set forth, to operate conjointly in the manner and for the purposes specified.

HALMEAGH VAN GEASEN.

Witnesses:

THEO. H. FRIEND,

JOHN S. THORNTON.